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ADDRESS OF THE PRESIDENT OF THE ONTARIO MEDICAL ASSOCIATION*

F. J. FARLEY, M.D.

Trenton

TO be President of the Ontario Medical Association is indeed an honour, a privilege and a pleasure. To divest one's self at the end of the year of a presidential address to a gathering such as this is a privilege and an honour, but I cannot truthfully say a great pleasure. However, I feel it my duty to present to you at this time some racy remarks, opinions and observations. I, therefore, crave, not claim, your kind indulgence.

The activities of the O. M. A. have become so changed, so enlarged and so greatly broadened during the past few short years that the organization has become entirely reborn. Owing in a large measure to the untiring efforts of my predecessors in office, the Association has taken on a scope and aspect so provincial-wide in its application that its membership, its work, and, in truth, its very thought have become symbolic, we believe, of the best in medicine in Ontario to-day.

As no structure is stronger than its foundation, and as the county and affiliated societies are the foundation stones of our association, I wish to say a few words about the work which is being done by our local units. Our secretary reports that, during the year, five new county societies have been organized, bringing the total number of active societies in the province up to 40. The reports from all are very encouraging, showing that they are quite active and fully alive to the benefits to be derived from thorough organized effort. Our central office, presided over by our

secretary, Dr. T. C. Routley, affords a clearing house for all of our problems, and a survey of the correspondence handled therein during the past year is most indicative of the constant proximity of our local units to the provincial organization.

As is known to most of you, the province is divided into ten counsellor districts, each district comprising several counties and being presided over by a counsellor whose duty it is to represent that district on the board of directors, and to assist in every possible manner in the work of the respective counties under his jurisdiction. During the year, as your president it has been my esteemed privilege to visit most of the districts, and I must say that I regretted being unable to visit them all. Commencing with the district meeting at Burk's Falls last August, and, later, the meetings at Port Arthur, Windsor, Peterboro, Owen Sound, Kingston and Toronto, a fair proportion of the province was covered. All of the district meetings were well attended, splendid papers being presented, in some places clinics being given, and there was uniformly in evidence a feeling of good fellowship and an *esprit de corps* which I cannot too strongly emphasize as the strong link in the chain which will bind medical men together, in honour preferring one another. I cannot pass from this reference to our district meetings without making particular note of the wonderful hospitality and good fellowship exhibited wherever we went. No place more than in our northern country was this in evidence and, as already intimated, I am strongly of the opinion that the social side of these district and county

*May 31st, 1922.

society meetings must rank very closely in value with the scientific and instructive phases. I would most heartily recommend the in-coming president to follow up this line of work; to urge all districts to stage meetings, and every physician to attend in person the district meetings, where, I am sure, he will find much profit and pleasure, and will have the added advantage of bringing himself into direct touch with a great many members of the association.

In addition to the nine district meetings which were held, and at which 57 speakers participated, the central office reports having arranged for 172 speakers to visit our county and affiliated societies during the past year. The question might here be asked, How was this extensive program financed? Just at this point let me say that, if in Ontario during the past year, there has been staged the most comprehensive medical extension course which has yet been put on in this or any other country, we have, in a large measure, to thank the Ontario division of the Canadian Red Cross for the splendid donation of \$5,000 which, in a large measure, contributed to our program. Upon receipt of this magnificent grant, it was decided that the speakers would be paid their travelling expenses plus a nominal fee of \$10.00 for their visitation at a county society meeting; and it was further decided that this arrangement would apply to each of our affiliated societies up to the limit of six speakers during the association year. Of course, the president has the privilege of paying his own expenses, while the association provides for the secretary. The 57 speakers appearing before the district meetings paid all their own expenses, while a large number appearing before the county societies did likewise. To the Red Cross, we owe a great debt of gratitude for their assistance. To the large number of men who so generously gave of their time and services, often, and should one not say practically always, at a personal sacrifice, our sincerest thanks are due. It was rare indeed to find a refusal to an invitation extended to our lecturers.

The *modus operandi* by which the county societies choose their own speakers with reference to the schedule supplied by the association, the central office subsequently making all necessary arrangements, has worked out very satisfactorily. As the president of our association, I point with no little pride to the educational achievements which the past year has shown, and, to the committee on education, so ably presided over by our past president Dr. J. Heurner Mullin, must we

also extend congratulations for the efficiency manifested in carrying out the work I have just described.

Our Aims and Objects

What are the aims and objects of our association? In brief, they are.

(a) To federate and bring into one compact organization the entire medical profession of the province; to extend medical education and to secure the enactment and enforcement of just, medical laws; to promote fraternal intercourse among physicians and to guard and foster their united and individual interests. We should ever strive to enlighten and direct public opinion in regard to the great problems of public health and ever endeavour to make the profession more capable and honourable within itself and more useful to the public.

How is this to be brought about?—If we are to progress and successfully obtain our objective, we must have a united profession working together with enthusiasm and harmony. Let us hold sacred the prestige and memory of our fathers in medicine and do as they did, uphold always the honour of the profession, and, by united efforts, make the practice and teaching of medicine in the Province of Ontario second to none. It should be our duty to so live and conduct ourselves as members of the Ontario Medical Association, that the public shall be made to realize that membership in our organization is the strongest possible guarantee of the honour, honesty and ability of any man or woman engaged in the practice of medicine in this Province.

The pride of every doctor should be his County Medical Society, his Ontario Medical Association and his Canadian Medical Association. Let us put forth every effort to strengthen our county societies, for, as these grow in membership and enthusiasm, so will our Ontario Medical Association increase in strength and usefulness. Likewise the more interest we can develop in our provincial organization, the stronger will become our Canadian Medical Association. It is only by educating the medical men of the country to the benefits that they will enjoy by uniting their efforts that we can hope for a strong national organization. There is always danger that an organization may become top heavy and we must see to it that our foundations are strongly laid. Our foundation is, undoubtedly, the county medical society.

At the semi-annual meeting held in Toronto

last December, the annual fee was raised from \$5.00 to \$10.00. The response has been magnificent, but we are far from 100% strong. Let us not rest in our efforts at organization until every practitioner of medicine in the Province of Ontario has become a member of our association. Let us have a vision of the work that is before us, and, as the Apostle Paul, the greatest organizer the world has ever known, said, "Let us gird on the whole armour of faith and press onward." Let us, as an association, wake up,—especially those of us born, reared and educated in old Ontario. No better universities exist in the world to-day. Let us not cease to study and progress and let us show our cousins to the south that we do not require the emissaries from their institutions to direct us in the path of medical science.

We should enlighten the public on the proper valuation of our services. They should be taught to feel that the general practitioner who carries them safely through an attack of typhoid fever or pneumonia has performed as great a service as a surgeon who does an appendectomy or some other critical operation.

I wish to thank the officers of our association for their cooperation and assistance during the year. If we have progressed, and I feel we have, it has been largely due to the undivided efforts of your officials working in unity.

I cannot discuss with you all the activities of your directors during the year that has just passed, as it would take too long, and I shall refer you to the bulletin and to the business programme we are publishing for that information. But there is one feature I must mention, namely,—arrangements have been completed by Dr. Secord, your vice-president and chairman of the library board, whereby the libraries of Western University, the University of Toronto, Queen's University and the Academy of Medicine, Toronto, have been made available to all members of our association. I can conceive of no work of greater importance to our medical practitioners. It requires no comment on my part.

The hindrances to our progress,—indifference, selfishness, and jealousy,—are destructive of all intellectual and moral earnestness. Nothing so lowers our standing in the community as the petty back-biting and quarrelling of our medical men. They apparently lose sight of their high calling and professional standing. Let there be keen competition, but no opposition. We inherited from our fathers in medicine a proud place in the community. Let us see to it that we

hand that position down to our posterity, unsullied and unstained. The doctor who gives little of his time to his county medical society becomes self-centred and selfish, is jealous of others, and is a living menace to the best interests of our association. He does not attend his medical society meetings, reads comparatively little, and becomes generally known as a chronic kicker. Ours is the privilege and duty to keep the art of medicine ever before the public. Let the cults rage if they must, but see to it that they do not interfere with our ancient rights and privileges, as such rights and privileges imply service to mankind.

Whatever real position the medical profession has in the hearts of the public is, I think, more due to their unselfish sacrificing lives than to their skill in the treatment of disease. Let us not lose sight of this fact in dealing with the problems that are confronting us at the present time. Time is demonstrating the fact that our profession as a whole spend their lives in service to humanity, following closely in the footsteps of the Great Physician. "And it is strange, but it is true, when the doctor came to say to us there was no need for further calls, we said to him, while we were glad, we too were sad he'd come no more; and I tried that day without success to write some lines of the doctor-man who comes to us when fear lies deep and brings us hope; and every day as days go by, brings cheer with him, and finally, when comes the day that whom he served is well again, we lose him as a doctor-man, but put him down as faithful friend."—K. C. B.

There has been considerable controversy of late respecting the teaching of medicine and the constitution of our medical teaching bodies. In order to gain first hand information, I requested our provincial universities to give me a report of their activities. In my opinion, the reports received are so worthy of attention that I shall herewith read them to you.

Queen's University

The present position of medical education at Queen's University is entirely satisfactory, for it has kept pace with the general progress in the science and art of medicine. Queen's faculty has always kept in mind that the primary purpose of a medical school is to train practitioners for the medical profession.

In 1892, the medical school divested itself of all proprietary interest and became a faculty of

the university under the control of the principal and senate. Since that period there has been a steady progress towards a definite ideal, progress which has been qualified only by financial limitations. In 1892, the first full-time professor was appointed. This was in the department of physiology. A few years later, a full-time appointment was made in pathology and bacteriology. In 1902, anatomy was placed in charge of a full-time professor. Since that time, chemistry, physics, and pharmacology have all been taken over in a similar manner, and there are numerous full-time assistants in all these subjects as well. Two years ago, full-time heads, with consultation privileges, were appointed to the departments of surgery and medicine.

It has been thought that a modern medical school could not be carried on properly in a community the size of Kingston. The continued success of this school and the quality of its graduates confutes such opinion. Although a relatively small city, it has long been a medical centre, with the General Hospital, the Hotel Dieu, Rockwood Hospital for the insane, Mowat Hospital for tuberculosis, the penitentiary, and, since the war, Sydenham military hospital, all forming a closely related group within an accessible area.

The main teaching hospital is the "General" which forms part of the University group of buildings and is now being greatly enlarged. About one million dollars is available for the rebuilding of this hospital. The first unit in this rebuilding is almost completed.

Queen's has reformed the curriculum to meet modern requirements. The fundamental sciences, —anatomy, physiology, chemistry, physics, pathology and bacteriology, are no longer water tight compartments, but are taught in close association with clinical subjects. The professors of chemistry, physiology, pathology and bacteriology are members of the hospital staff, are brought into contact with cases, attend clinical conferences and so teach under these influences.

Whatever advances have been made at Queen's are to be credited to the faculty itself and not to outside foreign inspectors and critics. Indeed the inspections and reports of the officials of the American medical association have been a hindrance rather than a help. They have sought to impose methods and details not properly applicable to our circumstances and ideals. When these have been rejected by the faculty, our graduates in the United States have been placed under dis-

abilities, as a result of improper and inferior classification of the school.

Queen's has also accomplished its financial salvation without assistance from foreign corporations. The medical school is a definite part of the university and is supported according to its requirements. It is recognized by the Ontario Government as part of the educational system of the province, and as entitled to receive money grants both for development and maintenance.

Admissions to the first year are limited to fifty. Many more applications have been received than can be accepted. J. C. CONNELL, *Dean*.

University of Toronto

During the past few years the clinical departments of the University of Toronto have been re-organized. First, the Department of Medicine was placed on an efficient basis, this was made possible by the generous gift, in endowment of the department, by the late Sir John Eaton. The department of obstetrics and gynaecology was organized upon similar lines. The last of the three great clinical departments, namely the department of surgery, was put upon a similar footing at the beginning of the present session. The necessary funds for this purpose were made available through the Rockefeller grant.

The following general statement will indicate the main features of the present organization of the clinical departments in the University of Toronto. The objects aimed at are also briefly stated.

The efficient running of a clinical department in a medical school of the size of Toronto with its different teaching hospitals necessitates the devotion of a large amount of time on the part of the Chief of the Department. Not only has he to co-ordinate the teaching and see that the individual student is getting the best possible instruction, but he has to supervise the work of the junior teachers, inaugurate, stimulate and direct research—all this in addition to his routine hospital work. It is pretty generally felt not only in this continent but in Europe that such services can only be expected from a man who receives sufficient remuneration to compensate him for the large amount of time he devotes to the work.

In some schools, the chief of the department devotes the whole of his time to university and hospital work and is not permitted to engage in private practice. In others he is given such remuneration as will enable him to devote part of his day—time not being specified—to his academic

duties. In Toronto, in the departments of medicine and surgery, a moderate full time scheme has been adopted. The chief of each of these departments devotes the whole of his time to university and hospital work with the exception of two hours a day which are allowed him for private practice. The advantages of the last provision are two-fold—(1) he comes in contact with the public and is better able to teach future practitioners by his experience with practice outside the hospital, and (2) it enables him to retire from the direction of the department at an age when he may still be active in practice but, it may be, somewhat stale from the academic point of view.

Under the chief of the department are the various members who are engaged in teaching, in caring for the hospital patients and in research. In the department of medicine, including the sub-department of paediatrics, these number 45; in surgery, 48; and in obstetrics and gynaecology, 11. The teaching staff is made up for the most part of part-time men, that is men who devote only a small part of each day to teaching and who are engaged in private and consulting practice outside the hospital. In addition to these, there are, in each department, junior full time assistants. The latter are men who have served their terms as junior and senior internes and have, in addition, spent a year in a laboratory. This means that they have spent at least three years in hospital and laboratory work after graduation. Under ordinary circumstances, such a man must go at once into practice in order to earn a living. He usually has to go to some small town where he is completely out of touch with University work. If such a man has shown promise as a teacher and investigator, the junior full time appointment gives him an opportunity of carrying on his work. He begins with a salary of \$1,500 to \$2,500 a year and, for the first year, he devotes the whole of his time to clinical and laboratory research and teaching. If his work has been up to standard he may be kept on for one or two years more at a slightly increased remuneration with a maximum of \$2,500. In these succeeding years, he is allowed to devote two hours of his day to private practice. In this way, he gradually builds up an outside connection so that at the end of two or three years he is in a position to relinquish his full time appointment and come on to the part time staff.

It is a well known fact that most original investigation has been done by men in their junior years and that it is very rare to find a man doing original work who has not begun it early in his

career. The scheme outlined gives promising men the chance of training in research and is bound to result in good work being done. At the same time, he is being trained as a teacher under the eye of his chief. He is in contact with the outside public for the two hours a day allowed him for practice, so that, when he goes on the part time staff, he is a most useful member of the department, one who can be depended upon to give the patients in the hospital the best of treatment, the students the best of teaching, and will continue to be interested in research and so be likely to be a credit to the university and hospital.

Such junior full time appointments will be available to suitable men who have had to go into practice shortly after graduating, provided they have had some hospital training as internes and have had a training in a laboratory.

In the course of time, if this scheme is carried out in its entirety, the whole of the teaching staff in the clinical departments will be composed of men who have gone through this training, the senior members composing the great part of the staff being on a part time basis and the junior men in training on a full time basis. The scheme is in this way progressive, providing always adequately trained junior men to take the place of the seniors as they retire on account of age or other causes. The effect of the present organization upon the university and hospital staff will therefore not be fully felt until after the lapse of some years.

A. PRIMROSE, *Dean.*

Western University

Our new medical school building, which represents an investment of approximately \$450,000.00, was officially opened last fall, classes having been held in it since October, 1921. The new building is up to date in every particular and affords unusual facilities for study in the laboratory branches. A staff of well trained specialists is in charge and very efficient work is being done.

The clinical work done in Victoria and other hospitals has also improved. Definite arrangements have been made with the board of trustees of Victoria hospital whereby the attending staff of the hospital is appointed following recommendation by the board of governors of the university. Hospital records and laboratory facilities have been greatly improved. The new "War Memorial Children's Hospital" is about ready for occupancy and will greatly increase the value of instruction to medical students, particularly as

regards the diseases of children and out-patient work.

The course of instruction here covers a period of six years, the first year now being devoted wholly to so-called pre-medical work in science, language, etc. Beginning with the session of 1923-1924, two years of such pre-medical work will be required and the medical course proper will be four years in length. The length of each session will probably be increased under these conditions to at least thirty-two weeks. The length of each session at present is thirty weeks.

One important matter here is the development of our library in the medical school building. Great progress has been made and there are available already a large number of complete files of the more important medical publications, as well as a large number of reference books. There is developing in the library also an important historical collection. The interest in this section is increased by the medical historical society, which is a student organization meeting regularly for the discussion of the history of medicine. This organization is giving considerable stimulus to our better students.

The auditorium in our medical school building is used by the Western Ontario Academy of medicine for meetings and clinics. The academy has brought a number of eminent men to London, and the value of these meetings is self-evident, not only to the profession, but to the students as well.

PAUL MCKIBBON, *Dean*.

We shall now turn to the sixteenth annual report of the Carnegie foundation for the advancement of teaching, by President Pritchett. He begins his article by stating that the primary purpose of the medical school is to train practitioners for the medical profession. He then outlines the method of teaching recommended by the Carnegie foundation and closes his remarks by stating that scientific medical practice is rooted in the laboratory and hospital. The training of the medical student to-day prompts him to rely more and more upon the scientific tests of the laboratory. This process has accentuated the tendency long noted which brings a growing proportion of medical graduates into the cities, towns and fair-sized villages. The isolated country doctor, necessary as he has been, fruitful as he may be in the prevention and cure of disease and in the relief of suffering, works under conditions that must be unsatisfactory to men trained in the modern medical schools. This reason

will weigh most with the more capable graduates of the medical schools. The result is that the country-side takes a constantly diminishing proportion of medical men from the school, and those who come to a country practice are likely to be amongst the less alert and less scientific minority. The difficulty of supplying properly qualified men to the rural districts has been a matter of earnest debate for some time past in the medical societies and among the thoughtful leaders of the profession. It has been seriously proposed that certain medical schools be kept on a lower plane of instruction with the notion that graduates of these schools should form the recruits for the country medical practitioners.

Owing to the amount of discussion that has been going on in the public press and our medical journals of the affairs in connection with the University of Toronto medical faculty, I am certain you have all been greatly interested in the reports I have just read to you. These reports show plainly that all our universities are proceeding to a greater or less extent on similar lines in their methods of teaching and staff appointments. That being the case certainly proves to my mind that some change from former methods of teaching was necessary, and that our universities are endeavouring to meet the situation fairly, and that they are fully alive to the present day requirements. We hear so much about the time wasted in laboratory research work and that students are being taught subjects that are not at all necessary to the average practising physician. Probably were the government thoroughly aroused to the necessity of establishing county laboratories and giving our graduates an opportunity to continue to enjoy the benefits derived from laboratory investigation, conditions would be entirely different. A communication received by me puts the whole matter very clearly. It states, "I cannot help thinking that a great deal of the criticism which we receive from time to time is due to the fact that the professional public are kept in ignorance of the situation. They do not understand our methods because they do not know what we desire to accomplish. We have certain ideals and we are doing our level best to secure efficiency in order that the general practitioner may obtain an education in medicine in the University of Toronto, second to none." What he says in reference to Toronto can be said equally well of Queen's University and of the Western University.

In planning a six year course, I find our univer-

sities have not followed the American plan of having the student spend two years in a University arts course, and then four years in medicine. They have so arranged the subjects taught, that our students, on entering the university, begin at once a well defined combined course of arts and medicine. He is a medical student from the first, and, as such does not feel he is wasting time taking an arts course. Further, I think it makes a more uniform course, as it is a well known fact that some universities do not have as high a standard as others, and, further, their course of instruction may vary in subjects taught.

After making as complete a survey as possible for one in my position, of the work being carried on in different universities, and the system of instruction used, I am convinced that our universities are not copying either German or American methods, but are developing well conceived plans of their own.

No one to-day questions the wisdom of having whole time professors in charge of the pre-clinical work. It has been proven a success in every way, then why condemn the appointment of full time professors in the clinical departments before they have been fully tried out. It appears to me that the main advantages in the whole time system in the major clinical departments are:—(1) The head of the department has more time to administer the department, both in the university and the hospital, to coordinate and systematize teaching, to supervise the training and work of the junior teachers and to direct clinical investigation. (2) It affords a greater opportunity for recent graduates to acquire a suitable training to equip them for the practice and teaching of clinical work. It is important that the organization of the clinical departments in the university and the medical services be such that the treatment of the sick, the education of the public in the prevention of disease, and the training of the undergraduates and graduates becomes the common interest of the staff in both the university and the hospital. This, I believe, is being attempted by all our universities. There is one striking contrast between the American ideals and the Canadian, namely, whereas the former are considering the establishment of lower grade medical schools for the training of country doctors, our Canadian universities hold an entirely opposite view. One of our leading professors in a communication to me states: "It is clear, however, that it is just precisely the country doctor who should receive

the most comprehensive training since he must, to a great extent, do his work alone, without the advantage of specialists immediately available with whom to consult."

I think it will be readily conceded that the training to qualify a man for country practice requires to be more thorough, and more comprehensive than that required by a young man who intends to practise medicine in our cities and larger centres. The former is thrown entirely upon his own. He has none of the aids such as hospital facilities, expert consultant, X-Rays or laboratory work to assist him. He is compelled by the very nature of his work to depend upon the faculties that God has given him and, if he is to be successful, and his patients are to receive the best that medical science can give them, it must follow that those faculties must be intensely and intelligently trained.

A well known American report states that Canada and the United States are medically one country; and also that, through the influence of the American Medical Association and its Council, the unfit medical schools in Canada and the United States are being weeded out. The latter statement may be true in the United States, but, so far, I have failed to observe that any medical school in the Dominion of Canada has been closed.

Long before that excellent report was made by Mr. Flexner, our universities had been looking into the future and were already making such advances as were necessary to meet the new and changing conditions brought about by laboratory research. I am proud to state that I do not think they required the advice of our American cousins to take this step, and further, I am satisfied that the professors in our universities are quite capable of keeping abreast of the times.

To me, it is quite apparent that there is a movement on foot across the line to internationalize medical science and, unfortunately, there appears to be a leaning in that direction among some of our men. It may be on account of my United Empire Loyalist forefathers and my early training but, with that movement I cannot agree. We hear of the British School, the French School, the German School and the American School. Let there be developed the Canadian School. I understand that a movement in this direction has been inaugurated by our Canadian universities. Let our universities unite and, by original research and development, build up a national school of medicine of our own. Assimil-

ate from the others what seems best, but ever strive to develop our own individuality and ideals. Build up a school of national Canadian medicine, with Canadian post graduate work. Have our own fellowship degree and let it be of such a high standard that the world shall know and recognize its worth. We must preserve our identity as a nation or be swallowed up by our larger neighbour to the south. Give us a degree of fellow of Canadian medicine and surgery and urge upon our students the advisability of striving to attain that degree. We have men with the ability; we have the well equipped universities; let them give us the ideals.

Bring me men to match my mountains;
Bring me men to match my plain;
Men with Empires in their purpose,
And new eras in their brain;
Pioneers to clear thoughts marshalled,
And to cleanse old errors fen;
Bring me men to match my mountains;
Bring me men.

Problems

Let us now pass on to some of the problems which await our solution. It is a well-known fact that recent graduates from our medical schools are loath to begin the practice of medicine in our rural districts. As a result, the cities and towns, large and small, are becoming over-manned, while large areas in the country which formerly had splendid medical service are to-day found deserted by practitioners.

There must be some explanation to account for this state of affairs. After spending long years in study, especially in this age when the student and graduate becomes duly impressed with the value and worth of laboratory pursuits, he hesitates to choose for himself the sphere of activity where he obviously knows that the laboratory can occupy but a very small part of his work. Very few recent graduates could afford to equip a laboratory; and, even were that possible, the country practitioner has little time to devote to laboratory work and research. How, then, is this situation to be met? I can see but one solution. The time has come when there should be established in every county centre a county laboratory with a technician in charge. To this, the country doctor could send specimens for examination, and could personally see the results, and not be compelled, as many are to-day, to send specimens one hundred or more miles to the nearest laboratory. Does it seem fair that the man engaged in the practice of medicine in the large centres having Government laboratories should be privileged to

enjoy the benefits derived therefrom, while those engaged in the struggle of practicing medicine in a country district are deprived therefrom? Government laboratories should be so distributed that their benefits would be easily within the reach of all.

With the establishment of county laboratories, let us have efficient, properly trained, whole time county medical health officers and trained municipal matrons. You say, "Oh, but, at the present time, we have efficient municipal health officers and inspectors." Let me report one instance. Last December, a case of scarlet fever was found three miles east of Trenton. Next morning, another case was discovered nine miles east. The municipal medical health officer was notified, and that afternoon he placarded for scarlet fever fourteen homes on what is known as the Kingston Road, between Trenton and Belleville, a distance of some twelve miles. Not one had been reported, and, had not a medical man discovered the first two and reported them, probably they would never have been found out. People were hiding the disease. Did the municipal health officer do anything? Yes, he put up the placards, that is all. Was it all? No. Milk from those homes continued to be sent to the cheese factory or sold to the people living in Trenton and Belleville, with the result that the disease spread, the type became more virulent and several deaths followed. An epidemic broke out in Trenton following a certain milk route. There must be something wrong and we must have a remedy. I would suggest the dismissal of all municipal medical health officers, except in cities of over 20,000 population, and, in their places, the appointment of qualified whole time county officials. Place such officials in charge of the laboratories; moreover, make part of their duties, besides looking after contagious diseases, the inspection of cheese factories, butter factories, milk routes, manufacturing establishments and all public buildings such as school houses, poor houses, jails, etc. With the duties I have outlined, together with the supervision of the work of the municipal matron, I think the services of a full time, well paid official could be thoroughly utilized. The appointment of municipal matrons is, in my opinion, a vital necessity in the province of Ontario. In our own county, there are settlements twenty-five miles distant from a doctor or trained nurse. These areas and many like them throughout the province show great need and offer opportunities for excellent service on the part of these municipal

matrons. Now, what would be the duties of a municipal matron. In the first place, take away from the Department of Education the medical inspection of schools, and put it where it belongs, in the department of health. Let the municipal matron be the nurse inspecting the school children. Let her also be the truant officer. Who can better get into a home and reach the hearts of the parents than a well trained public health nurse? Had there been one in the township of Sidney, such conditions as existed on the Kingston Road last December, and to which I have already made reference, would have been impossible. She would have discovered the disease and quickly and efficiently, with the assistance of the county medical health officer, stamped it out. Those found guilty of concealing the disease would have been punished and the sale of milk stopped. It is a well known fact that nearly all the epidemics of diphtheria and scarlet fever are directly traceable to carriers. The nurse, on inspecting schools, could send swabs from all discharging ears and noses to her county laboratory, and the county officer would at once know if any of the suspects were carriers. If any were found they could be quarantined and treated, an epidemic could probably be prevented, lives spared, and such conditions as septic endocarditis and deafness greatly lessened. Going about the municipality, her services would be available to the poor widow left with a small family, to the poor in general, as well as to the aged and infirm pioneers. One of the greatest problems we have to face in this province is the increasing numbers of that class called morons. They are fast filling up all our institutions, and what to do with them is a problem. They co-habit or inter-marry and are raising a large number of mentally deficient children. They are mental, moral and physical degenerates, a menace to society and a prey to insanity, vice and disease. Up to the present time, all we have been doing for them is to put the morality officer on their trail. They hate our society, our civilization and our laws. We push them aside or brush past them. It is another picture of the road to Jericho. These people came originally from good stock, hence the name degenerates. How are we to reclaim them? Let us take Mr. and Mrs. Doe as examples. Mrs. Doe becomes pregnant. Instruct her to notify the municipal nurse who will visit the home and begin pre-natal care. A doctor will also be engaged to take charge of the case. Mrs. Doe will be seen frequently, the various requisites will be

supplied, and the doctor attending will not be compelled, as I have been on many occasions, to use a handkerchief as the only clean cloth available to be used as a dressing. The nurse is notified and at once takes charge of the case. She may not be available at the time of Mrs. Doe's illness, but there are always plenty of neighbour women ready to help. And just here let me say, after the doctor's work is done, his bill would be sent to the municipal nurse who would O. K. same and send it on to the Board of Health for payment. I sincerely believe that the municipality should pay for all indigent obstetrical work. Because a woman is poor, she should not be compelled in her hour of travail, to depend upon the charity of some doctor in the community as is the prevailing system at the present time. Now, let us follow the picture further. The nurse visits the home from time to time, sees that it is kept clean, and watches over the growth and development of the child. When the latter is of school age, the nurse visiting the school sees that the child is present; if not, back to the home she goes and sees to it that the child is promptly sent to school, supplying clothing, books, and any other necessities. Ever thoughtful, watchful, patient and persevering, the nurse watches over the growing child. What is the result? Along with the development of the mental faculties of the child that must come from years spent at school, there is developed self-respect, without which no animal is of any use—respect for our civilization and respect for our laws. Watching over generation after generation in this way, I feel certain that, as time goes by, we can educate, develop and train them back into useful citizens. Is it worth while? As the average net value to the state of every normal adult is said to be \$4,000.00, supposing our municipal matron saves but one child a year, her salary and expenses would be paid. Suppose, in addition, she should increase the efficiency of ten 10%, five 20%, see what value she is rendering the state. Count the present cost and then consider the future. Must something not be done without delay?

One could continue this line of thought indefinitely, but the above illustrations will no doubt suffice to make clear my point.

I hope you may see with me how closely the three, county laboratory, county medical health officer and municipal nurse are allied. One naturally follows the other, and, if we are to have efficient enforcement of our medical health laws, the three are essential. At the same time, we

must not lose sight of the fact that they must materially aid the general practitioner in his work. These three, the county laboratory, the county medical health officer and the municipal nurse at once lead us up to the fourth problem we have before us, namely, the municipal hospital.

Our large general hospitals are second to none. Our county hospitals are good, but require more equipment to make them as efficient as they should be. But there is an almost total lack of that much required institution, the small municipal hospital. And what is the crying need for the municipal hospital? First permit me to say that many lives are lost every year because of the inability of the patient to be transported to the larger centres. For emergency work, accidents and obstetrical cases, the need is most obvious. To take care of the poor who will ever be with us, such hospitals are needed. These hospitals would also serve as a meeting place for country doctors. Here they could come together, discuss their cases, keep in touch with hospital work and ideas, hold their medical society meetings, clinics and clinical lectures. Think of the benefit that would accrue to both our country practitioners and the public for the lecturers could illustrate their talks with cases, with proper case reports and laboratory records. This would give the country doctor the very best of post graduate work, keeping him constantly up to date; and this further implies that while he stays on the job, he is being brushed up on the essentials of his daily practice. His increased efficiency must necessarily be reflected upon the public whom he serves.

The ideal for which we are all striving, that which will render the public the most good, appears to be something such as follows:—Our large general hospitals as they do at present, would supply the expert internist and surgeon. The county hospital would develop and supply the local consulting staff, while the municipal hospital becomes the centre to which the general practitioner sends his cases and there carries on his work with the assistance, where necessary, of the county consultant or the expert from the larger centre.

Closing

There is a tendency on the part of many to decry the country doctor. They say he is inferior in knowledge, in medical skill, and is, as a class,

not up to date. Some go so far as to say he should be re-examined at stated intervals to compel him to keep properly posted.

Come with us to the country doctor's home. Drive with him in daylight and dark, through rain and mud, slush and snow, day after day, night after night. Worn and weary, tired to death, but still carrying on. The sense of duty as well as necessity for making a livelihood compel him to keep going on, on, on. Desk littered with medical journals, many of them wrappers still unbroken, books piled up waiting to be read; he has pride, ambition, and a desire for knowledge, but how many hours a day could you read following his mode of life? How often, going to bed completely fagged with a book in his hand, determined to read up some case that is worrying him, he falls asleep, his wife turning out the light. Doctor Stucky, President of the Kentucky State Medical Association, states, "Close observation as years go by of medical men convinces me that the real practitioner of the science and art of medicine does not make a diagnosis and formulate conclusion from data on half a dozen or more type-written slips; but by observation and experience, the doctor learns to interpret the different data and prove or dis-prove them by what his own fingers feel, his own ears hear, and his own eyes see, aided by intuition which has been well defined as subconscious reassurance based on previous experience. Not for one moment do I believe that the day of individualism has passed, nor do I think it will ever pass."

To my mind, this depicts the true country doctor. The newspapers delight to herald the wonderful deeds of our highly trained specialists, but the artist and poet, never. They immortalize on canvas and in song the country doctor.

The country doctor does not wish sympathy. Just lend him a helping hand. Thank God for the Ontario Branch of the Red Cross Society that has assisted in the carrying out of post graduate work unequalled in any other country in the world.

Let me live in a house by the side of the road,
Where the race of men go by,—
Men who are good, men who are bad,—
As good and as bad as I;
I would not sit in the scorner's seat,
Nor hurl the cynic's ban;
Let me live in a house by the side of the road,
And be a friend to man.

SYPHILIS—THREE YEARS' OBSERVATION*

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Toronto

THE following report represents an attempt to determine the results of treatment in a group of cases, over a period of three years in the ordinary syphilis clinic. The cases, 562 in number, were in no way selected but are taken from our roll in alphabetical order and are those reporting at the Toronto General Hospital special treatment clinic, during the years 1916, 1917, 1918.

Wherever possible the Wassermann tests are noted over a period of three years, but as will be seen by the charts many of our patients discontinued treatment long before this period had elapsed.

Numerous difficulties confront one in the care of syphilitics and the most important one is the patient himself. The patient, while he suffers from visible or distressing symptoms, is usually quite willing to continue treatment but as he begins to feel better he becomes less and less enthusiastic, soon failing to appear at all. This occurs in spite of the efforts of the social service nurse and against the advice of the medical officers of the clinic and against the instructions in the pamphlets of the Board of Health. So much has been written in the press regarding venereal disease that it has become more or less commonplace and does not seem to hold out the same terror in the minds of the public as it once did. This I believe is also true to some extent among the medical men. It is particularly noticeable since the general use of salvarsan and other arsenicals that patients are surprised when told they are suffering from syphilis believing themselves cured as the result of one or two intravenous injections: this is not always their own belief but was often the opinion of their physician. The public are well acquainted with the blood Wassermann test but are unable to appreciate the difference between a negative reaction as a result of treatment and a nega-

tive reaction in those who have never had the disease. Many of our cases have discontinued treatment after being told of a negative reaction.

I think all will admit that a three year period of observation is the absolute minimum for any type of syphilitic infection yet it will be seen how very few reported for that length of time. No case was neglected by the social service nurse as cards were sent requesting them to return and, failing to hear from them, calls were made urging them to return; if they had moved every effort was made to locate them but in a large city numbers of them were impossible to trace.

The 562 cases are divided for convenience into primary, secondary and tertiary. The primary cases—54 in number—presented various types of chancres both genital and extra-genital. All cases had a dark field examination on admission as well as a Wassermann test. Forty-three proved to be Wassermann positive and these cases had lost valuable time in beginning their treatment. Of the eleven dark field positive but Wassermann negative cases only one ever became positive during the period of observation; whereas, four of the Wassermann positive cases after becoming negative, again became positive. A large number—24—discontinued treatment during the first six months and twelve of them took less than five injections. It is a noticeable fact that 13 of the positive cases discontinued treatment in the first six months on acquiring a negative Wassermann and from observation of similar cases one can be sure that in some of them at least active signs will crop up later. The three year period finished with thirteen cases twelve of which had remained negative for the previous eighteen months. I am quite sure that had the bulk of these cases been regular attendants nine out of ten of the entire group would have remained clinically and serologically negative. It has

*Read before Section of Medicine, Academy of Medicine, Oct. 11, 1921.

been said that extragenital infections are more virulent than genital ones but in my opinion this is not the case but merely more time has lapsed before the diagnosis is made. In my experience I have never seen an extragenital chancre early enough to present anything but a positive Wassermann. The average amount of treatment is noted on the chart of each drug used. It has always been the policy of the clinic to make the treatment suit the individual, but an attempt is always made, in so far as possible, to follow the intravenous (diarsenol) injections by intramuscular injections of mercury; then, after a short rest, a second course of diarsenol and mercury. Some of our cases in this group received the mercury by inunction and most of them received iodides for varying periods.

54 CASES PRIMARY SYPHILIS 3 YEARS' OBSERVATION

Average) Intravenous	-	10.3					
Treatment) Mercury Intramuscular	-	6					
Mixed Treatment or Rubs		6 Weeks					
Prelim. Wass.	1-6	2-6	3-6	4-6	5-6	6-6	
Discontinued Treatment	Mths.	Mths.	Mths.	Mths.	Mths.	Mths.	
POSITIVE WASSERMANN							
43	11	4	4	2			
Wass. Negative							
Dark Field Pos.							
11	37	21	18	14	12	12	
Discontinued Treatment	13	1	4	2	0	0	

54 CASES PRIMARY SYPHILIS

Result of follow up for 3 years
Average No. of visits - 17

Still under observation	13
Transfer	2
Their own Physician	3
Left the City	4
Cannot Locate	20
Refuse to Attend	2
Died	1
No Record	9

54

The secondary cases, 130 in number, all showed various signs of wide distribution of the infection; the time varying from three or four weeks after the initial lesion to lesions appearing some months after infection. Many of these cases were admitted to hospital on account of open infectious lesions and there received their first course of treatment. For two years, 1917 and 1918, a spinal puncture was a routine

procedure in the wards, and a variation from normal was noticed in over half of these cases. This change from normal was usually a slight increase in the cell count with faint trace of globulin but at times the Wassermann was strongly positive also. I do not believe that these patients are doomed, but, on the contrary, recover very well under careful treatment. Case B.G., admitted January 1918, primary sore on lip with maculo papular rash, blood Wassermann very strongly positive with cellular increase, globulin and Wassermann positive in the spinal fluid; under treatment rapidly became negative in both blood and spinal fluid and has since remained so. At times the blood Wassermann becomes rapidly negative but some months after one is surprised to find serological changes in the nervous system and later on the blood Wassermann becoming positive such as D. R. Mc., admitted to the clinic February 1917, showing penile sore, macular rash, pharyngitis etc.; under diarsenol and mercury, Wassermann in blood became rapidly negative remaining so for a year; on examination of the spinal fluid he was found to have 160 cells, marked globulin increase and positive Wassermann with very strongly positive Wassermann in the blood. This case feels well and has shown no nervous symptoms yet a negative quickly becomes positive on interrupting treatment for any length of time.

Among these 130 cases, four cases were noticed which we in the clinic have termed "flopers," i.e., cases that even while under constant treatment will go negative, become positive and again become negative all in a short space of time without any apparent cause. I do not believe the question of a new infection can be considered in this connection but possibly a lighting up of foci allowing Wassermann producing bodies to escape may be the explanation. I may say that in this series these four cases occurred in women who had had syphilitic babies.

As will be seen by the chart, 51 discontinued treatment still "Wassermann positive" and 45 with a negative Wassermann—only 32 or 25 per cent completing the three year observation; twenty-four of the 130 cases made less than ten visits to the clinic and discontinued receiving only diarsenol and therefore a very unbalanced course of treatment.

130 CASES SECONDARY SYPHILIS 3 YEARS
OBSERVATION

Average) Intravenous	-	11				
Treatment) Mercury Intramuscular	-	7.5				
Mixed Treatment or Rubs			11	Weeks		
Prelim. Wass.	1-6	2-6	3-6	4-6	5-6	6-6
Discontinued	Mths.	Mths.	Mths.	Mths.	Mths.	Mths.
Treatment	21	10	10	6	4	
POSITIVE						
WASSERMANN						
130	80	43	37	25	16	11
NEGATIVE						
WASSERMANN	50	48	38	32	27	21
Discontinued						
Treatment	18	6	8	8	5	

130 CASES SECONDARY SYPHILIS

Result of follow up for 3 years
Average No. of visits - 20

Still under Observation	32
Transfer	15
Their own Physician	4
Left City	14
Cannot Locate	40
Refuse to Attend	3
Died	0
No Record	22

130

378 tertiary cases showed a great variety of clinical lesions and were referred to us from every department in the hospital. The improvement in their health and clinical condition is almost miraculous in the majority of instances. Many, however, showed very little or no improvement and a few became steadily worse. These cases were ones in which the syphilitic process had actually destroyed tissue and were beyond repair, such as degenerative changes in the brain or spinal cord, optic atrophy, etc. It is interesting to note that in some of these cases, under intensive treatment, the Wassermann became negative; they gained in weight and strength but showed no change in their clinical condition except for the tonic effect of their treatment.

It is readily seen that the tertiary cases required longer treatment to relieve active symptoms. By a comparison of the number of visits made they were also cases that, in many instances, years ago, knew that they had had the disease and appreciated the fact that it required months and years of medicine.

In this group of cases it has often been noticed that active and energetic treatment sometimes does harm, the patient losing weight and appetite, suffers from loss of sleep and head-

ache, etc., and in these cases treatment should be discontinued for a time at least. This is important and while it is probably desirable to attempt to obtain a permanent negative Wassermann, yet the general health of the patient must not be forgotten. One is apt to forget that some of these patients have lived in good health for years with little or no treatment. At times some of these late cases, through continued treatment, seemed to present exacerbations of old lesions.

In this tertiary group 25 were noticed whose reaction varied considerably and a few would vary even without treatment.

The three year period finished with 72 reporting, showing 33 positive and 39 negative; but I have no doubt that some of these 39 without more or less treatment will again become positive.

The bulk of positive cases after three years are made up of clinical types of syphilis, such as heart and nervous cases with a number of women who have born syphilitic children.

378 CASES TERTIARY SYPHILIS 3 YEARS
OBSERVATION

Average) Intravenous	-	12.6				
Treatment) Intramuscular Mercury	-	7.7				
Mixed Treatment and Rubs			18	Weeks		
Prelim. Wass.	1-6	2-6	3-6	4-6	5-6	6-6
Discontinued	Mths.	Mths.	Mths.	Mths.	Mths.	Mths.
Treatment	107	42	26	20	16	2
POSITIVE						
WASSERMANN						
378	293	175	114	73	49	33
NEGATIVE						
WASSERMANN	85	84	82	68	55	39
Discontinued						
Treatment	12	21	29	17	16	0

378 CASES TERTIARY SYPHILIS

Result of follow up for 3 years
Average No. of visits - 28

Still under Observation	70
Transfer	43
Their own Physician	28
Left City	38
Cannot Locate	103
Refuse to Attend	29
Died	9
No Record	60

378

It is not the purpose of this paper to go into the clinical or treatment side of syphilis in detail, but rather to see over an extended period what Wassermann results, and what control we might have over our patients; and, it seems to me, from these statistics, we have very little.

Some of our patients attended very religiously, but often they were not the ones who should have attended so regularly, as at times the younger and earlier infections were more or less impossible to keep under control. All syphilitics need individual attention as far as possible and it would be much better if this attention could be given by two or three men co-operating.

Unfortunately these clinics are getting so large and unweildly that this is impossible, the only solution appears to be more clinics.

In conclusion, I would like to thank Miss Grant, our social service nurse, for her work in making this paper possible and Miss Adams, the clinic secretary, for her aid in compiling the reports.

THE MEDICAL CARE OF POST-OPERATIVE ABDOMINAL CASES*

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Toronto

IT may seem strange to you that a mere physician should be taking part in a discussion on the care of surgical cases. My chief excuse for doing so is that our Chairman asked me to speak and I have had sufficient experience in the Army to know that a request of this kind must be taken as an order.

As regards the relation of the physician to surgery, I quite think that when once an operation has been decided upon, a case should be in the charge of the operating surgeon until the patient recovers from that operation; but in many of the complications that may arise the medical skill and experience of the physician may be of service to the surgeon in his steering the case back to health, and should be freely used by him. Thus, although the attending physician temporarily gives over the helm to the surgeon (for only one helmsman should steer at a time) still he should always be available in case his special knowledge be required by the surgeon.

The suffering connected with a surgical operation has shifted from one stage to another as the technique of surgery has changed and advanced. There are three stages to be considered.

- 1.—The preparation of the patient for the operation.
- 2.—The operation itself.
- 3.—The few days that follow the ordeal.

In pre-anaesthetic days the distress, of course, was chiefly during the operation, and, nowadays, we can scarcely realize what the suffering must

have been after the patient had been committed to the operating chair or table, and when legally any plea of his to be let off could be and was ignored. The scene is well depicted by Dr. John Brown in *Rab and his Friends*, and one can picture but never now sees what Ailie went through as the incision was made and the nerves cut in the removal of a breast. No wonder that the great dog, Rab, 'growled and gave impatient yelps' as he watched from a distance where poor Jeems held him! I am afraid that nowadays neither James nor Rab would have been admitted to the operating room, or at least would have had to wear masks and sterilized gowns. Now, the patient is spared all this and from the time that he goes under the anaesthetic until he wakes up in bed he is unconscious of any pain, although, as Crile has emphasized, his nervous system has still been bombarded with afferent impulses which may produce subsequent shock. Chronologically speaking, the next stage that gave rise to suffering was during the period when sterilization of the area of the impending operation was in vogue, and people would often say that they had more pain and discomfort following the shaving and scrubbing and chemical sterilizing of the skin than from anything else connected with the ordeal. This stage no longer exists, the necessary sterilizing being done chiefly by means of iodine immediately before the operation.

The third, or postoperative stage still remains, and it is with this that we are now concerned.

There is bound to be a certain amount of misery attendant upon the awakening from the anaes-

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thetic, while the patient still reeks of ether or other drug. Much of this suffering is avoided by the now common practice of washing out of the stomach while the patient is still unconscious, but until the blood is free of the anesthetic he more or less feels the effects of it. Beyond this, if all is going well, the question becomes one of dieting, and the management of the bowels.

As regards the diet it is generally agreed that for the first twenty-four hours after the operation there should be practically no food given by the mouth, and after that, if all nausea has disappeared, a gradual feeding, at first with small amounts of fluids. But if the stomach remains irritable for more than a day or two it is well to give some nourishment by the bowel. Rectal feeding has been practiced since the times of Galen and Celsus and so has much historical backing. Lately its value has been a good deal discounted and we know that many of the substances thus given are not absorbed; some are, however, and thus a partial nourishment can be achieved which may be of great value. Water, monosaccharides, alcohol, the simplest forms of amino-acids, and probably salts, are rapidly taken up by the lower bowel, and a nutrient enema composed of these can easily be constructed. One that I have often found useful is that suggested by W. E. Fothergill (1) which is as follows:

Glucose.....	50.0 c.c.
Alcohol.....	50.0
Calc. Chloride.....	0.3
Sod. Bicarb.....	3.0
Sod. Chloride.....	4.0
Distilled Water.....	1000.0

1500 c.c. of this, equalling 825 calories, to be given daily in four enemata. Peptonized or pancreatized milk is often used and if the predigestion has been prolonged the proteins are so reduced to simple amino-acids that they are freely absorbed. Or any of the commercial amino-acids may be used instead. Cornwall (2) gives the following recipe which should be useful:—

Dextrose.....	20-50 gm.
Alcohol.....	20-50 c.c.
24-hours pancreatized milk or commercial amino-acids.....	1000. c.c.
Common salt.....	9.0 gm.

of this preparation 250 c.c. may be given every four hours, having a caloric value of 420-755 calories. A very simple nutrient enema is a ten per-cent solution of glucose.

As regards the management of the bowels there is much difference of opinion. If these have been well cleared out before the operation and there are no symptoms requiring purgation then it has

always seemed to me that the bowel should be rested rather than stimulated. I agree with O'Day, when he says, "With no intestinal obstruction, constipation never causes grave conditions". (3) This writer gives some experimental work which, if confirmed, is of interest. In 200 blood cultures done on 100 individuals the results were always negative before the giving of a cathartic but were positive in 62 instances after such administration. The bacteraemia lasted for about 20 hours. He believes that the cathartic irritates the mucous membrane and so permits the passage of bacteria into the chyle, lymph and blood streams. An enema is not open to as many objections and mineral oil to very little. I notice that Haubold's (4) rule is to give no purgative for ten days after the operation unless for some special indication. I would go as far as to say that the question of a purgative should be decided by the medical attendants and not be left, as is too often done, to the nurse or even the patient himself.

Certain symptoms and conditions are prone to arise in the post-operative stage which will require special treatment. I will only attempt to discuss a few here. Such are pain, thirst, prolonged nausea and vomiting, hiccough, acute dilatation of the stomach, and tympanites. Shock is too big a subject to take up now.

Pain—The degree of pain felt by an individual depends upon two factors; viz, the amount and intensity of afferent impulses that are arriving at the brain centre, and in the next place the sensitiveness of the pain centre to such impressions. Some people are so sensitive to pain that a slight focus of irritation may cause them acute suffering, while, on the other hand, we see those who have little distress from what apparently should cause a great deal. Pain is a subjective thing. When it is evidently present it is for the surgeon to say if there is any removable cause in the wound itself. If not it must be treated symptomatically and here opium or one of its alkaloids is our standby. Of these alkaloids morphia is by far the best analgesic, and yet one often sees codeine used although pharmacologically it has far less effect in this direction than morphia. I agree with H. C. Wood, Jr., when he says "as a somnifacient or analgesic codeine is practically useless." (5) It is only a quarter as strong as morphine and if given in large doses is apt to excite. When morphia is given it is well not to combine atropine with it unless for some special reason as it is apt to cause dryness of the

fauces. In mild instances of pain acetylsalicylic acid has some relieving effect; far more than any of the other salicylic bodies.

Thirst is often a distressing feature of the postoperative state. It is largely in proportion to the amount of fluid lost by haemorrhage or by vomiting, or secreted as in acute dilatation of the stomach. Dryness of the throat goes along with thirst and hence the suggestion of the avoidance of atropine where possible. In slight cases the frequent washing out of the mouth with a warm alkaline solution is of value. Ochsner speaks of the comfort giving by chewing gum. If the symptom be severe water may be given by the bowel, and in urgent cases subcutaneously or even intravenously. This last method must be employed with caution or acute oedema of the lungs may result.

Nausea and Vomiting are almost inevitable after a general anaesthetic, but if unusually severe or prolonged, will suggest other possible causes. The following five varieties may require very different treatment.

- 1.—That due directly to the anaesthetic.
- 2.—That due to obstruction, early from paralytic ileus and later from bands or adhesions.
- 3.—From acute dilatation of the stomach.
- 4.—From toxæmia.
- 5.—Neurotic.

If the vomiting from the anaesthetic be severe, gastric lavage with a weak alkaline solution is generally indicated, although in milder cases the free drinking of warm fluids may be sufficient. This makes any vomiting easier and also tends to wash out any irritating contents of the stomach. If gastric lavage be not effectual many next use cocaine, $\frac{1}{4}$ grain by the mouth, either alone or combined with say 25 minims of 1/1000 adrenalin solution. Counter-irritation in the form of mustard over the epigastrium is usually useful.

Obstructive vomiting is best treated with lavage, but if from bands or adhesions, may require a further operation.

Acute dilatation of the stomach is a rare but grave complication of abdominal operations. Sometimes the dilatation involves also the duodenum, and dilatation of the duodenum alone has been described by Wilkie (8) and others. We have no time to discuss the etiology here. It usually appears about the third day but may occur much earlier or later than this. There is great depression with little or no pain but vomiting of large quantities of olive-green foul-smelling

material. Gastric lavage, repeated if necessary, is the best treatment and, of course, the patient should have nothing by the mouth. Pituitrin, $\frac{1}{2}$ -1 c.c. hypodermically is of some value.

In the toxic types of vomiting the channels of elimination should be flushed with normal saline. Glucose and soda solution by the bowel or intravenously or subcutaneously is most effectual here.

Neurotic vomiting should be treated with large doses of bromides, or with chloral hydrate bromides by the bowel. The stomach tube has often a powerful psychic influence here.

Hiccough is a common and sometimes very serious complication of abdominal operations. It is a reflex manifestation, usually the source of irritation being in the stomach and hence lavage with alkaline solutions is of value. If after this the irritation still remain, carminatives, such as Hoffman's Anodyne, often help, but in my experience the two most useful drugs are atropine hypodermically, and chloretone by the mouth. In hysterical patients valerian may be useful.

Tympanites is often distressing or even dangerous. The remedies usually first tried are hot stimulating applications to the abdomen and turpentine enemata. If these are not sufficient the old-fashioned enema of molasses and milk (one ounce in three of warm milk) is often of great use. Lately digitalis has been employed for this condition, large doses being given by the bowel. It acts in some obscure way and is a good example of rational empiricism. Shier (6) recommends that after all abdominal operations the patient should be given two drachms of the concentrated tincture, corresponding to an ounce of the B. P. tincture, in the Murphy drip as a prophylactic measure. As will be noted a little later this may also lessen the chances of respiratory complications. If the meteorism persist, pituitrin, 1 c.c. hypodermically, may be used. It acts by directly stimulating non-striated muscle, in this way differing from adrenalin which produces its effects through the nerve endings. It is well to remember, however, that both of these bodies tend to raise the blood pressure and may thus strain a flabby heart. Moynihan speaks of a patient of this sort who died within a few minutes after a usual dose of pituitrin. Eserine sulphate is also used in doses of 1/100 to 1/50 gr. hypodermically. It acts on both nerves and muscle.

I have said nothing about respiratory complications following these operations, but it will be remembered that massive collapse of the lung is specially apt to happen after operations in the

upper zone of the abdomen. As regards bronchitis, pneumonia and oedema of the lungs it is interesting to note for what it is worth that Felix Mandl (7) found that the intramuscular injection of digipuratum at the time of operation reduced respiratory complications to less than one half. A very common respiratory complication is pulmonary embolism and infarct.

Such are a few thoughts that have occurred to me in connection with the subject. I would end by repeating my belief that although the responsibility for the after care of abdominal operative cases should be in the hands of the surgeon, still the physician can often be of use and should be asked to freely share the care of cases in which

complications arise which are amenable to medical treatment.

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INFANTILE ECZEMA*

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ECZEMA, the most common skin disease of infancy, is intimately associated with disturbed metabolism in a group of individuals exhibiting a peculiar pre-disposition towards certain manifestations. These manifestations show often in early infancy in the form of eczema, associated with catarrhal conditions of the respiratory tract, such as naso-pharyngitis, bronchitis, and later on asthma. This predisposition is congenital and often hereditary, as shown by careful enquiry into the family history in these cases.

In the earlier writings eczema was described as linked with, or even a part of the scrofulous group. The individuals comprising this group exhibited frequently symptoms of a tubercular nature, and so in earlier times, eczematous infants were often spoken of as having a tuberculous tendency. This conception for many years clouded the medical vision, but since Czerny (1) designated certain symptoms or manifestations as belonging to the "Exudative Diatheses Group" we have a somewhat clearer understanding of a complex condition.

Leo Wolf (2) in a review points out that the

idea of the diathesis is very old, having played a prominent role in the medicine of Ancient Greece, especially the school of Galenus. Today we still use such terms as the tuberculous, the arthritic, or the lymphatic diathesis, and these conditions all point to Adlers theory of organic inferiority. This existence of a constitutional defect makes possible in the exudative group, for example, the exhibitions of the well-known chain of eczema, bronchitis, asthma, etc.

The skin manifestations in the exudative group may be, as to location, limited or extensive, and may vary as to severity, from a mild seborrhæic eczema to a severe infiltration of the tissues with extensive excoriation. The varied forms are too familiar to warrant any elaborate classification. The most frequent locations are the face, scalp and arms.

The symptoms generally occur early in the life of the infant and are seen usually in fat, well nourished infants and also, to a more limited extent, in the undernourished. As far as the skin manifestations are concerned, there is a decided tendency to clear up or subside about the end of the second year of life. During the course of the disease much nutritional disturbance takes place, but fortunately, early and proper

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treatment shortens the course of the disease, eliminates much physical discomfort, protects the nutrition, and may influence the appearance and severity of the more serious associated conditions which follow later.

A great many causes have been mentioned in regard to eczema. Eppinger and Hess believe that it is a form of vagotonia, the manifestations being due to an increased tone in the vagus system. In support of this Leopold (3) published his results in eczema in a series of cases treated with Atropin in increasing doses. He claims good results from this treatment even with no changes in diet. Blackfan (4) and Schloss (5) emphasize the apparent disturbance in protein metabolism and Blackfan (4) infers that the condition is chiefly due to absorption of foreign protein as demonstrated in a series of protein skin reactions in eczematous and non-eczematous individuals. As far back as 1882 Henoeh in his book makes note of the hereditary tendency and mentions the condition as associated with nutritional disturbances due to the high fat content of mothers' milk. Holt notes the occurrence of the conditions in fat, healthy looking infants on breast milk. Czerny defines the exudative diathesis as "a change in the chemistry of the organism which is caused by a congenitally low tolerance of the organism to fat." Finklestein and Meyer think the changes are due to altered metabolism of the salts. Bernis and Kern look on the change in the nitrogen metabolism as characteristic. Kern found that children with exudative diathesis have a delayed excretion of uric acid. There is also strong evidence that either too high sugar content, or too high sugar concentration, are in some instances apparent causes, and in nearly every case of florid eczema, sugar, (i.e., soluble carbohydrate) has an irritating effect during the course of the disease. Czerny noticed a close connection between exudative and neuropathic tendencies in these infants. A careful survey of the family history will, he thinks, often reveal severe neuroses in the parents. Buk thinks the neurotic tendency explains the genesis of diarrhoea or constipation in the breast fed infants of this type. These symptoms arise from an intestinal irritation too insignificant to produce symptoms in a normal child. The neurosis accounts for abnormal skin reactions in these children and hence the eczematous child will continue to scratch and tear at himself until the blood comes. The geographic tongue has been looked upon by some writers—including Czerny—as an indication

of exudative diathesis. This has been an infrequent occurrence in cases I have seen. The close connection between the eczematous affection of the skin, and the affections of the air passages as naso-pharyngitis, bronchitis and asthma is now generally recognized. (The series I have tabulated demonstrates this connection rather forcibly. Naso-pharyngitis occurs frequently and commences early in life. There is usually a slight temperature with these re-occurring attacks and, due to the repeated infection, the post-lymph glands become chronically enlarged. Otitis media is, of course, not uncommon. In some children of this type bronchitis is the predominating feature. In these children later in childhood we often see asthmatic attacks. In this type of case there is often enlargement of the lymphoid organs—the spleen, thymus, tonsil and intestinal follicles. Czerny regards the changes in these organs as secondary to the pathologic changes in the skin and mucous membranes. The hypertrophy he regards as due to over feeding, which favors the deposit of fat.

It is well known that diarrhoea and infections such as pneumonia, cystitis, etc., often produce marked improvement in the exudative skin condition.

Confronted by these rather different views as to the cause of the condition it seemed that some useful deductions might be made from a clinical review of a successive number of cases occurring in private practice. I have therefore tabulated a number of cases in which a complete history was kept and where opportunity was given to observe the cases over a fairly extended period of time. The frequent food idiosyncrasies seen in eczema, bronchitis and asthma have led me to include a few cases not showing eczema, but exhibiting other features common to the exudative diathesis.

These cases seem to group themselves in three classes

- (1).—Infants developing eczema on breast milk (high fat).
- (2).—Infants developing eczema on cow's milk mixtures and sugar.
- (3).—Older children developing eczema on mixed feeding.

In the latter class the eczema is usually associated with a history of over feeding with gross errors in one element such as high carbohydrate (in the form of jam, preserves, candy, etc.) May we not gain some information from this grouping and is it not logical to assume that eczema is an evidence of disturbed metabolism

of one or more food elements? The high fat breast fed infants form the most common class and in the second class we get better results from the use of skimmed milk, so that we are justified in assuming that a deranged fat metabolism is the most frequent and definite factor in causation. Two types are present in the fat disturbance cases. First, those infants who gain very quickly and in whom the severity of the eczema corresponds with the rapid gain in weight. This type of infant becomes flabby and has not the feel of a normal well nourished plump infant, and is pasty in color. The second type of child remains stationary even on properly adjusted food. These children if on breast milk are often weaned, and then it is discovered, too late, that they do even worse on cow's milk dilutions. Increase of quantity of food produces no benefit, and, in these cases, we should recognize early that it is not the kind of food, but a congenital metabolic defect in the infant that makes the condition possible.

There can be no doubt that the protein skin tests furnish much information and definite indications in regard to treatment. That a disturbed protein metabolism is the original or congenital causative factor does not to me appear to be proved by any work already done. Blackfan (4) obtained twenty-two positive (cutaneous or intracutaneous) reactions in twenty-seven eczema infants. Positive reactions were obtained in only one instance in a series of forty-three patients with no history of eczema. In three of my cases M. R. and B. W. and T. G., I obtained positive reactions in patients without eczema, but with associated symptoms of head colds, bronchitis, etc., and in one case a family history of asthma.

In one other non-eczematous patient with bronchitis the skin tests were negative, although there was a definite history of intolerance to egg white which was still persistent at eleven years. Clinically great improvement is brought about by the elimination of the proteins giving positive tests, but on the other hand a great mass of clinical evidence points to an early fat intolerance. Some cases in the breast fed, i.e., high fat feeding, clear up with high protein food (i.e. protein milk) as a supplement. In practically all cases we meet this intolerance to fat and so well recognized is this feature that practically all cases are at once given a low fat food. The suggestion has been made that as in diabetes we have a mixed disturbance of carbohydrate and fat metabolism, so in eczema we have probably a congenital fat disturbance which brings about a disturbance of the protein and carbohydrate mechanism. Dr. Coleman and I hope to continue some work along this line.

The existence of sensitization in the breast fed child is suggestive and we meet cases in which infants are sensitized to proteins which they have never digested. O'Keefe (6) reports a case, breast fed, sensitized to cow's milk casein, in which he obtained complete relief in two weeks from cutting down the cow's milk in the maternal diet. This child showed a relapse at five months when weaned and put on cow's milk. Another case, breast fed, was sensitized to oat and egg protein. The mother was found to be taking a large amount of oatmeal and several eggs a day. The eczema cleared on reducing these elements to a minimum. Case 2 (D.D.) of my series is a similar case.

PROTEIN REACTIONS IN ECZEMA CASES

TABLE 1

Case	Age of Onset	Distribution	Reaction	Assoc. Symptoms.	Result
1.—S. G. (M)	1 mo.	Face, shoulders, trunk and lower extremities	Lactalb+ Barley+ Wheat+++ Ragweed+ Timothy+ Eggwhite+ Oat+	Eczema, 1 mo. Bronchitis, 2 yrs. Asthma 2½ yrs.	{Eczema cleared at 2 yrs. Asthma improved.
2.—D. D. (M)	7 wks.	Face, scalp, arms	Eggwhite+ Oat+		Cured at 10 mos.
* 3.—P. H. (F)	5 wks.	Face, trunk, extremities.	Eggwhite+++ Oat++ Wheat+	Bronchitis 3 mos. Cyclic vomiting 12 mos. to 2 yrs. Asthma 8 yrs.	Eczema clear. Asthma unimproved.
* 4.—W. H. (M)	5 wks.	Scalp, face and chest	Wheat+++ Oat++ Cow's milk+		Cleared in 4 wks.
5.—E. B. (F)	4½ mos.	Face, arms.	Oat++ Barley+		Cleared in 2½ mos.
6.—S. E. (M)	10 days.	Face, scalp, trunk, extremities.	Eggwhite+	Bronchitis, Head colds.	Cleared quickly.

PROTEIN REACTION IN ECZEMA CASES—*Continued*

7.—W. I. (M)	3½ mos.	Face, scalp, trunk	Eggwhite++ Wheat++ Timothy+ Ragweed+	Head colds 1st yr. Bronchitis 1st yr. Asthma at 4 yrs.	Eczema cleared. Asthma relieved.
8.—D. S. (M)	3 wks.	Face, scalp, trunk, extremities.	Eggwhite+ Barley+ Wheat+	Eczema, 3 wks. Bronch. since 2 yrs. Asthma 5 years.	Eczema cleared quickly, Asthma less marked.
* 9.—F. F. (M)	5 wks.	Face, scalp, trunk, extremities.	Negative to usual protein tests.		Eczema cleared rapidly in 5 wks.
*10.—M. F. (F)	7 mos.	Face, scalp, arms.	Eggwhite Oat+ +++	Intolerance for cow's milk to 2 yrs. Egg causes upset.	Eczema cleared quickly after 5 mos.
11.—A. S. (F)	16 mos.	Both extremities.	Cow's milk Eggwhite+ Oat+ Wheat+	Bronchitis. Enlarged T. and A.	Improved slowly.
12.—N. W. (F)	4 mos.	Face, scalp, trunk.	Eggwhite+ Wheat+ Oat+		Cleared quickly.
13.—K. Mc. (F)	5 mos.	Face, trunk, ex- tremities.	Lactal+ Oat+ Eggwhite+ Cows' milk+ Barley+	Bronchitis, Head Colds.	Clear after 10 mos. treatment.
14.—B. N. (F)	3 mos.	Face, trunk, ex- tremities.	Lactal+ Oat+ Barley+ Eggwhite+		Clear in 6 mos.
15.—E. D. (F)	6 mos.	Trunk	Cows' milk+		Cleared slowly.
16.—A. C. (F)	2 mos.	Face, scalp, trunk, extremities.	Eggwhite Cows' milk++ Oat+ Barley++	Bronch. 1st year Head colds 1st yr. Asthma at 2 yrs.	Improved slowly.
17.—W. T. (M)	9 mos.	Face, scalp, trunk.	Wheat++ Eggwhite+ Barley+ Cows' milk+	Head colds	Much improved in 4 mos
18.—L. P. (M)	11 mos.	Face, scalp.	Oat+ Wheat+ Chicken+	Bronchitis. Cyclic vomiting.	Cured quickly.
19.—R. S. (F)	11 mos.	Face, thighs.	Eggwhite+ Oat++ Wheat+		Cleared quickly, 1 mo.
20.—M. A. (F)	11 mos.	Face, Arms.	Eggwhite+ Oat+		Improving.
21.—M. R. (M)	18 mos.	Skin clear	Eggwhite+ Wheat+	Bronchitis. Head colds. Upset with egg.	No upset with no-egg diet.
22.—B. W. (F)	18 mos.	Skin clear.	Eggwhite+ Cows' milk+ Wheat+ Oat+	Head colds. Bronchitis. Vomiting after cows' milk or egg.	Bronchitis improved with no egg and boiled cows' milk.
23.—T. G. (M)	7 mos.	Skin clear	Cows' milk+	Frequent head colds. Collapse after cows' milk feeding.	Tolerance for cows' milk established in 5 mos.

*Brothers and Sisters.

My series consists of seventy successive cases of well defined eczema. Twenty-two (*Table I*) of these cases were tested with the various proteins: lactalbumin, cow's milk, egg white, barley, oat, wheat, etc. Only three of these cases failed to give positive tests to one or more of the proteins, i.e., 80% of tested cases gave positive results. Unfortunately all the cases were not tested, so that it is impossible to state the percentage of the whole series. In these twenty-two cases tested, fourteen reacted to egg white, thirteen to oat, ten to wheat, seven to barley, six to cow's milk, and three to lactalbumin. In eight cases there was a definite history of marked upset, vomiting, prostration or bronchial asthma after the ingestion of small amounts of egg. In all these cases the protein skin test for egg white was positive. The case of W. Irwin is typical.

This case, W. I., was breast fed for ten months. At three and a half months he had developed marked eczema of the scalp, face, body and arms. Various kinds of ointments were advised by a skin specialist with no relief. No dietetic treatment was tried. At ten months he was put on a plain milk and water mixture with sugar and at twelve months cereals, broths, etc., were added to his diet. The eczema showed no improvement until he was two years of age and it occurred at various periods until he was over three years of age. Since this time he has been free of eczema except for a few mild attacks. At eighteen months of age he was given a custard containing egg and vomited at once. His mother did not realize at first that the egg was responsible for the vomiting and a short time afterwards he was given a soft egg. He immediately became very ill, vomiting occurred within two minutes with coryza and a choking sensation. His mother then omitted egg from his diet. A few times he had plain cake containing eggs and immediately became ill (vomiting, coryza and slight wheezing). At one time he dipped his finger in the meringue of a pie and took in quantity not more than half a teaspoonful of this. There was vomiting, etc., at once. During the first two years of life he had frequent bronchial attacks associated with vomiting and constipation. At four years of age he had a definite attack of asthma. I saw him six months later during another definite asthmatic attack. He was tested out by giving him strawberries, raspberries and raw apples. They produced no reaction. Ordinary bread caused no upset, but

wheat flakes produced, slight upset. His protein skin reactions were as follows: Egg white, positive; lactalbumin, positive; wheat, positive. Barley, oat, and casein, negative. At present oatmeal, in moderate quantities produces no reaction; cheese, butter and bacon can also be taken.

He was put upon a no egg, no wheat, diet with skimmed milk. His tonsils and adenoids were removed and he was sent to the country after the operation. There he was exposed to timothy pollen and had a very bad attack of asthma. He returned to the city looking very pale and worn and with a marked bronchitis. He reacted to timothy and ragweed and was given increasing doses of vaccine over a period of five weeks. After four weeks his condition improved rapidly, he gained in weight, and had no return of the asthma for five or six months. During the course of the next year he had several bronchial attacks, but no definite asthma. This case is quoted in detail because it shows the association between early eczema and asthma in a typical manner.

In one of the eczema cases there was marked shock within five minutes of the administration of 1,000 units of antitoxin. Similar cases have been reported and there is no doubt that anaphylactic shock, with even fatal results, may follow the administration of horse serum. All eczema cases should be carefully tested with minute doses of serum given at two hour intervals before administering the usual prophylactic doses.

The series of cases consists of 33 breast fed (47%), 22 (31%) fed on cow's milk and sugar, and 15 or (21%) on mixed feedings, with cow's milk. This last class did not develop eczema on cow's milk alone.

Eczematous children usually give a history of either constipation or loose green stools with fat curds. In this series 38 or (54%) were constipated. These children will usually eat too eagerly. In 43 or (61%) of this series there is a history of an eager or good appetite. In 39% there was a definite family history of either eczema, persistent head colds, bronchitis or asthma. These children are usually well nourished, a small proportion being under weight. In this series 57% were over weight or normal in weight. Too frequent feeding interval is especially harmful in eczema cases. In 70% of the breast fed of this series there was a history of being fed every three hours or oftener. If the normal breast fed baby does

so much better on the four hour interval, it is especially necessary to have a sufficient interval in this type of infant with a weakened tolerance for fat. In 63% of this series there was a definite history of fat intolerance. Of course it cannot be stated that the fat was the initial cause of the eczema, but the high percentage is very suggestive.

There seems to be some close connection between eczema and carbohydrate metabolism. It is a well known fact that we can substitute a 4 to 5% insoluble carbo-hydrate for a 4 to 5% soluble carbohydrate and obtain great improvement in symptoms. This is so well recognized that many pediatricians immediately eliminate all sugars and substitute starch in the feedings. In this series this procedure was followed, the form of starch being Imperial Granum or prepared Barley Flour. In 56% of the series sugar had an irritating effect on the skin condition. In many cases the mother noticed this and nearly all my cases were tested by adding sugar during the course of treatment. Dr. Coleman has suggested that the improvement with the starch is probably explained by the increased time needed to allow absorption of the starch on account of hydrolysis. The carbohydrate concentration may play an important part in the treatment of this condition.

Clinically, orange juice seems to increase the skin irritation and I have stopped the orange juice in all cases, until the skin was clear.

There seems to be no doubt that the fat in preparations such as Evaporated Milk is more easily handled than the fat of cow's milk. On this account I have used this preparation in all the very extensive eczemas and also because the irritating proteid of the cow's milk (in this preparation) is destroyed with the high heat used in its preparation, hence we get excellent results in the cases where cow's milk protein causes irritation. In mild cases boiling the skimmed milk is sufficient.

Dietotherapy and local treatment meets generally with a quick response. There is often alleviation of symptoms in three days and much improvement in a week. In my series 65% were clear of eczema in less than three months and remained clear if they adhered to treatment. Twenty-four percent took from 3 months to 9 months to become clear, i.e., 89% were able to keep clear of eczema. In all these cases the eczema would, I think, have returned on the original diet. Three cases showed only slight improvement. Four cases, developing eczema on

breast milk cleared by giving protein or Larosan Milk before each nursing.

ROUTINE TREATMENT

The plan adopted in all severe cases is as follow:

- 1.—Make protein skin tests, using Arlington Chemical Co., prepared proteins.
- 2.—Put on Evaporated Milk or boiled skimmed milk. (In the breast fed reduce the intake of fat by giving barley water or protein milk before nursing).
- 3.—Substitute starch for sugar.
- 4.—Eliminate all raw fruit or fruit juice, such as orange juice.

These children can usually be given enough fat soluble vitamine in Cod Liver Oil to protect from Rickets. After the severe symptoms have subsided some cases can be given orange juice or in some cases such preparations as Dryco Milk seem to contain enough anti-scorbutic vitamine to protect over the period of treatment.

- 5.—Local treatment, i.e., external therapy:

The external therapy consists in using olive oil in place of water for cleansing; and the use of local applications such as tar and resorcin ointments. No beneficial results from local treatment can be obtained without the very active co-operation of the nurse or mother. The child must be kept from scratching. This means that the arms must be put in restrainers and the hands in linen mitts or aluminum mitts. The arms should be loosely fastened so that the child is comfortable, but cannot scratch. In severe cases it is generally necessary to keep the child quiet by the use of a comfortable fitting straight jacket. (The legs should be kept apart if affected, so that they cannot be rubbed together). Quartz light therapy has been tried in several cases but we have so far seen no permanent improvement.

In the majority of cases in infants, after the scales or crusts have been removed with oil, I have used 30-50% tar ointment with 1% salicylic acid. In some cases this is too irritating and more bland applications are advisable. For the scalp a 4% resorcin ointment is usually effectual. After the severe symptoms are over any bland oily substance will suffice.

CONCLUSIONS

- 1.—Eczema is a disease due to a congenital metabolic defect. Dietotherapy is therefore the important treatment.

2.—Fat intolerance is the most frequent cause. Protein and carbohydrate disturbances are usually present—probably as a result of the fat disturbance.

3.—Protein skin tests furnish much information and are present practically only in exudative diathesis cases.

4.—The association between eczema and affections of the air passages is definite.

5.—There is a family tendency to exudative diathesis.

6.—Local treatment gives great comfort and hastens the cure.

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EXANTHEM SUBITUM—REPORT OF FIVE CASES

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BABY F., 15 months of age, a child of healthy parents, took ill in January of this year with continuous fever, 103, and restlessness. Physical examination at that time revealed nothing of importance except a very mild injection of the pharynx. The ear drums were normal and nothing could be found in the thorax to explain the temperature. I considered this to be an attack of naso-pharyngitis which was quite common at that time of the year. The temperature continued with little remission for three days and fell rapidly to normal on the morning of the fourth day. On this day the mother reported to me by telephone that while the child seemed well again in every respect, he had broken out in a profuse rash which covered his entire body. Upon examining him I found the temperature 98, the throat normal and the child bright and playful. He had, however, as the mother described, a rash which was maculo-papular in type, the lesions varying in diameter from 2 to 5 mm. They faded out on pressure, they were nowhere haemorrhagic and did not present the crescentic forms common to measles. The rash was of a pale rose color, was most marked on the trunk and abdomen and present to a lesser degree on the arms, legs, neck and face. It did not appear to be itchy. The eruption lasted about thirty-six hours, after which it faded with very faint desquamation.

This case serves as a typical example and is one

of a series of five similar cases which have come under my observation within the past year. The onset, the symptoms, the course and the outcome are strikingly similar in all of these cases. In no way have any of these cases presented the characteristics of any of the well known exanthems and one is forced to the conclusion that here is a new and generally unrecognized disease.

Of my five cases, two were in girls and three in boys. The ages varied between nine and fifteen months. In no instance was it possible to trace the disease to a previous case, nor were there any cases resulting from contact with these children.

The onset was abrupt in all the instances, the temperature varying between 101 in the mildest case and 105.3 in the most severe one. In one, the onset was ushered in by a sharp convulsion. In all, the temperature was sustained with very slight remission of not more than one degree in the twenty-four hours, until it fell by crisis, which occurred on the fourth day in four of my cases, and on the morning of the fifth day in the child whose onset was with the convulsion. In each case the crisis was coincident with the appearance of the rash. The eruption was quite characteristic in all the cases, morbilliform in type, macules and maculo-papules, 2 to 5 mm. in diameter, fading out on pressure and not itchy. The greatest distribution was from the lower part of the face to the pelvis, the lesions in the extrem-

ities, face and head being more scattered. However profuse the rash appeared in any part of the body, the skin between the lesions presented its normal appearance. Coalescence was not present in any of my cases, although it is mentioned by other observers. No enanthem was observed and no glandular enlargement. In only two of my cases was faint desquamation seen. There were no complications. This series does not seem to have any seasonal incidence. Of my five cases the first occurred in November, 1920, the second in November 1921, the third in January 1922, the fourth in February 1922 and the fifth in April of this year.

What is probably the earliest description of this disease was published in 1910 by Zahorsky, of St. Louis, who called it Roseola Infantilis. In 1913 he reported a series of thirty-five cases under the name of Roseola Infantum. The onset and course of Zahorsky's syndrome bear a detailed resemblance to the syndrome I have just described. More recently Levy described the same syndrome and also expressed the belief that it was a new eruptive fever quite distinct from any of the well known diseases. Veeder and Hempelmann reported a series of eight cases which were studied in detail and mentioned more than twenty that have been observed by them. They expressed the belief that they were "dealing with a definite clinical entity not recognized in any of the present text books." They suggested the name of Exanthem Subitum as being "descriptive of the most striking clinical symptom, namely, the sudden unexpected appearance of the eruption on the fourth day."

Greenthal reported eight cases in Ann Arbor in January of this year with practically the same clinical symptom complex.

Briefly the chief characteristics of the disease are these:

1.—The age of the patient; between nine months and two years in all the cases so far reported except in one instance where the patient was five years of age.

2.—The symptoms; characterized by sudden onset, irritability and sustained high temperature for three or four days with nothing in the physical examination to account for it except a very slight injection of the pharynx.

7.—The blood picture; studied by Veeder and Hempelmann and characterized by a leukopenia, 5 to 7,000 with a relative lymphocytosis.

4.—The characteristic eruption; occurring with defervescence on the fourth or fifth day, commencing on the face and spreading rapidly over the entire body, maculo-papular in type, pale rose red in color, with its greatest intensity on the trunk and abdomen and fading in two or three days, followed by a very faint desquamation.

5.—The apparent absence of contagion. This has been noted by all who have so far written on the disease. In my own series, too, no instance of contagion was noted.

6.—The absence of complications or sequellae.

The differential diagnosis offers little if any difficulty, in view of the unusual course of the disease. There is no other exanthem in which the eruption is consistently coincident with defervescence and with the disappearance of all signs of illness.

CONCLUSIONS

"Exanthem Subitum" is a new febrile exanthem presenting a distinctive clinical syndrome and a characteristic eruption. It is apparently non contagious, is of unknown etiology, affects chiefly infants, does not occur in epidemics, and is without complication or sequellae.

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FORMOL-GEL REACTION IN THE BLOOD SERUM OF SYPHILITICS*

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IN the *C. R. de la Soc. de Biol.* of November, 1920, there appeared an article by Gaté and Papacostas in which was presented a new and very simple technique for the examination of serum in cases of syphilis or suspected syphilis. Because the technique is so very easy to carry out a great saving in time would be effected if the test is an efficient one. If the results can be relied upon the test would be suitable for practitioners, even those without the advantages of a laboratory.

In the original article there was a report upon the examination of over 400 cases; the results showed that the "formol-gel" test corresponded with the Wassermann reaction in 85% of the cases. The technique employed was as follows: In a test tube was placed 1 cc. of very clear serum and two drops of commercial formalin. This was shaken to assure mixing, plugged with cotton and left at the temperature of the laboratory for a time varying from 24-30 hours. They came to the following conclusions:—

1.—Previous inactivation of the sera is not necessary. The reaction is produced in certain sera whether it is inactivated or not. 2.—The reaction is obtained as easily with sera 48 hours or even several days old as with fresh sera. It is necessary that the sera should not have been contaminated. 3.—Incubation does not modify the reaction. 4.—"Relating to the possible comparison between the "formol reaction and the Bordet Wassermann, we have observed "the following facts:—

"A mixture of several sera positive to the Wassermann, gives a positive formol reaction in 100% of cases.

"A mixture of several sera negative to the Wassermann, gives a negative formol reaction in 100% of cases.

"For sera taken singly and submitted to the two reactions, we find between them, whether they give positive or negative reactions, an agreement in 85% of cases."

Since the publication of the original article referred to above, several letters have appeared in the literature on the subject. One of these, is written by J. Mackenzie to the *British Medical Journal* of June 11, 1921. In it, among other conclusions, he states,—"It would be premature to form any definite opinion from such a small series of tests (25), but the results obtained are sufficiently striking to show the potentialities of the method, and to give rise to the hope that this rival of the Wassermann test may lead to a simple and reliable method of diagnosing syphilis."

Since that time numerous contributions have been made to the same Journal. None of them places any reliance upon the results obtained. In fact, it appears in most cases that no reaction took place. It might be pointed out, however, that no reference is made by these contributors to the kind of formalin used in their tests. We would judge that at least one of those who obtained unsatisfactory results employed chemically pure formalin. It is necessary that commercial formalin be employed.

This communication records the examination of a comparatively large number of sera (201). All of these tests were controlled by the Wassermann reaction. Eighty-seven of them, whose clinical histories were readily available, were further analysed. The technique employed was as follows: From .5-1cc. of the serum to be tested was placed in a flat-bottomed test tube having a diameter of $\frac{1}{4}$ of an inch. Two drops of commercial formalin per cc. of serum were added. The tube was then shaken to thoroughly mix the contents, and was stoppered with a pledget of absorbent cotton. After standing for 24 hours at room temperature, the reactions were read by comparing the viscosity of the treated serum with that exhibited by a control tube. The viscosity of sera giving a positive reaction varied from a semi-fluidity to a firm gelification. In a few cases this was so marked that the gel could be removed from the vial only with the aid of some instrument. On the other hand, those sera giving a negative reaction remained perfectly fluid. None of the 201 cases

*From the Pathological Laboratory, the Montreal General Hospital.

was selected, but all were taken as they came to the Genito-Urinary Outdoor Department of the Montreal General Hospital under Doctor F. S. Patch. All of the tests were made on the same day that the Wassermanns were done. None of the 87 cases which were further analysed, were specially selected.

The analysis of the 87 cases whose clinical histories were obtained, showed that the age of the patients ranged from 6 months to 47 years, the average being 27 years. Of the 87, 53 were males and 34 were females. A clinical diagnosis of syphilis in its different forms was made in 62 of the 87 cases analysed. The diagnosis depended on the presence and character of the following lesions (in conjunction with the Wassermann reaction).

Primary Sore.....	15
Rash and Mucous Patches.....	26
Sore and Rash.....	2
History of Sore.....	20
History of Rash.....	9
Husband or Wife Syphilitic.....	12
Ulcers on the Legs.....	5
Gonorrhoea.....	7
Not definitely diagnosed clinically.....	25

TREATMENT—43 cases had not received any form of antisyphilitic treatment when submitted

to the two reactions (Wassermann and Formol-Gel). The remaining 44 had received intensive courses of diarsenol and mercury for periods ranging from one month to six years, as follows:

Treated for 1 month.....	4 cases
" " 3 ".....	2 cases
" " 4 ".....	2 cases
" " 5 ".....	1 case
" " 8 ".....	2 cases
" " 1 year.....	10 "
" " 2 years.....	11 "
" " 3 ".....	2 "
" " 4 ".....	3 "
" " 5 ".....	2 "
" " 6 ".....	1 case
Exact length of treatment unknown..	4 cases

RESULTS

As the result of our investigation, we have obtained the following results:

Of the 114 unanalysed cases, there was an agreement between the Wassermann and formol-gel reactions in 74 cases, or 65%.

Of the 87 analysed cases there was an agreement in 60 of them, or 65%.

With the technique employed we are of the opinion that the "formol-gel" test is not as reliable as the Wassermann reaction.

THE CLINICAL DIAGNOSIS OF SYPHILIS*

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THE cutaneous manifestations of syphilis are possibly the most striking features of the disease, yet they constitute only one phase in a general process involving all systems.

In this description only the skin lesions will be dealt with.

It is customary to divide the course of syphilis into the periods of primary, secondary and tertiary.

In the primary period, the initial lesion which occurs at the site of inoculation with the spirochaeta, appears about twenty-six days after the inoculation, and is associated soon after with swelling and induration of the neighbouring lymphatic glands which drain the sore.

The secondary period manifests itself by cutaneous eruptions which are seen about forty-five days after the development of the primary sore and are usually associated with a febrile disturbance.

The tertiary period is characterized by lesions of a more chronic type, not so widely nor so symmetrically distributed. They may appear two or three years after the commencement of the secondary period or after a latent period of indefinite duration during which no distinct evidences of the disease are present. The chancre varies greatly in appearance, but, most commonly, it is found as a flat erosion, circular or oval, from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, deep red in colour at first but later assuming a grayish tint and either moist or covered with a thin grey mem-

*Read before Section of Medicine, Academy of Medicine, Toronto, Oct. 11th, 1921

brane. After a few days, the lesion becomes raised and hard, and when pinched, feels like a disc of paper, a nodule of cartilage or a hard ring. Though slightly itchy at first, it is associated with no definite pain. In this condition it remains for three or four weeks, heals spontaneously and leaves a brownish indurated scar which gradually disappears unless definite ulceration has taken place in which case a permanent cicatrix may result.

Varying from this type of lesion, the chancre may occur as a simple abrasion situated on an indurated or non-indurated base, or from secondary inoculation with pyogenic organisms or the action of irritating discharges behind a tight prepuce, the chancre may become acutely inflamed and associated with much oedema: again, in debilitated subjects, such as diabetics, the secondary inoculation with pus organisms may lead to gangrené, necrosis of the chancre and the formation of a deep phagedenic ulcer.

Occasionally, Ducrey's bacillus of soft sore may be introduced at the same time as the syphilitic virus, with the result that the sore begins on an inflammatory base covered with a purulent discharge; this later becomes indurated and takes on the characteristics of a chancre.

In some cases two or more chancres are present as the result of several inoculations taking place at the same time, from the presence of several abrasions, or as a result of a series of inoculations occurring at intervals of a few days.

Another uncommon type is the relapsing chancre. It may appear a few weeks after the original lesion has healed or several years later. The induration entirely disappears, but, on reappearance, takes the form of the original chancre in extent and character or by softening, may suggest a breaking down gumma.

With regard to the situation of the initial lesion; in the male two-thirds of them are found on the mucous membrane of the prepuce, in or behind the corona, or on the surface of the glans penis: when it occurs in the urethra, near the meatus, both lips are generally affected giving rise to marked induration and oedema.

The lesions on the penis, with which a chancre is most liable to be confused, are soft sore, herpes and scabies. Points of distinction are as follows: The incubation period of a soft sore is a few hours to several days like an ordinary impetigo; soft sores are generally multiple, deep and punched out, irregular in outline, soft, readily autoinoculable, and the neighbouring glands become in-

flamed, painful, and are liable to suppurate: finally, the discharge contains the bacillus of Ducrey.

Herpes is not infrequent on the penis and labia, but there is no induration therewith and the erosion which follows the vesicles tends to be polycyclic in outline.

In scabies the lesions are usually multiple—occurring as round indurated red spots or small excoriations covered with scales, occasionally a typical burrow is seen, and there are evidences of the disease in the usual sites. Just in point, I remember a patient overseas who was allowed to go on leave with an unhealed scabetic lesion on the penis, and, shortly after his return to hospital, a chancre appeared in the abraded surface.

Extragenital chancres are most common on the lips, in the mouth, on the fingers and face, but may be found on the tongue, tonsil, in the nose, on the eye or within the anus. In three years at the London Hospital, Whitechapel, Dr. Sequeira had (80) eighty cases of extragenital chancre, (42) forty-two in the female and (38) thirty-eight in the male. They were slightly more common on the lower lip than the upper. Two unusual sites were the umbilicus and the palmar surface of the right hand—the latter occurred in a bus driver, and appeared to have been contracted by passing the hand along the railing leading to the top of the bus.

On the lip, the lesion may consist of a fissure, an erosion or an elevated ulcer with indurated edges, and covered with a brown scab. The lip becomes swollen, and the glands beneath the chin enlarged and hard. An epithelioma of the lip evolves more slowly, is more irregular in outline, occurs after middle life, and the neighbouring glands, if enlarged, do not become so for five or six months.

On the tongue, the chancre is usually found on the dorsal surface, in the anterior part as a simple erosion with an indurated base, a deep ulcer or a sclerotic mass, and associated with enlarged, indurated, submaxillary glands. A carious tooth will give rise to a more painful ulcer at the side of the tongue.

Chancre of the beard region might be mistaken for trichophytic sycosis, but the enlargement of glands and the absence of fungus, would establish a diagnosis.

On the nipple it is distinguished from a simple fissure by the induration, absence of pain and by the enlarged, painful axillary glands.

On the finger, the inoculation usually takes place through an abrasion, but it has been known to occur on an eczematous patch or a broken chilblain. The common site is about the finger nail, where it gives rise to a painful, irregular ulcer or to a fissure with indurated edges, or it may resemble a whitlow, causing the end of the finger to be red, hard and swollen. The epitrochlear and axillary glands are enlarged.

A chancre within the anal orifice is deep red in colour, usually oval, not markedly indurated and the inguinal glands are enlarged. Tuberculous ulcers in this area are more yellow and have better defined borders. Anal fissures are distinguished by being more painful and not associated with enlarged glands.

To go now from the chancre to the cutaneous syphilides. These lesions have certain characteristics which are common to the majority of them and serve to distinguish them from other skin affections. The disease has been described as the "great imitator," and practically every form of primary and secondary cutaneous lesion may be simulated by a syphilide—for example one case may be papular suggesting lichen planus, another pustular resembling a bromide eruption, another scaly like psoriasis, circinate like seborrhoeic dermatitis or papulo-pustular like acne vulgaris.

The majority of syphilides have a peculiar "copper" or raw ham tint, with the exception of the early roseola and pigmented lesions, they are indurated; the early forms come out rapidly and disappear rapidly—the late form develops slowly and remains indefinitely. The late forms usually remain discrete, but may coalesce to form circles, segments of circles or serpiginous figures. The early eruptions are usually symmetrically distributed; involve the face, trunk, and flexor aspects of the limbs. The late lesions are grouped asymmetrically. Sensory symptoms are absent in cutaneous syphilides except when irritated by friction or associated with seborrhoeic dermatitis. And finally, they improve rapidly with salvarsan or mercury, while local treatment has little or no effect on them.

For purposes of description, the cutaneous syphilides are classed as early, intermediary and late. In the early group are the roseola, pigmentary and widely distributed eruptions which are usually papular, but may be scaly, vesicular or pustular. The intermediary lesions consist of those on the palms and soles, and papules arranged in rings, or clusters about a large central

papule. The late syphilides consist of those which are ulcerative or gummatous in type.

The macules of the early eruption are round, oval or blotchy, about the size of a split pea, and may suggest the flush of scarlet fever. In association, there is painless enlargement of the lymphatic glands, pain in the head—most marked at night, pain in the limbs, sore throat, albuminuria and a rise of temperature with evening exacerbations. The early syphilide must be distinguished from a toxic eruption of the erythema multiforme type. In the latter the lesions are present chiefly on the face, the backs of the hands, the wrists and the fronts of the legs, are darker in colour and remain discrete. Drug eruptions such as produced by copaiba and antipyrin, develop much more rapidly and are brighter in colour. In pityriasis rosea, the patches are round or oval, with buff coloured centres and pinkish scaly margins. Close examination shows the scales to be attached by their outer margins—other scaly eruptions show scales to be attached by their inner margins. To add to this there is usually the history of a single early lesion called the "herald" patch.

The pigmentary syphilide usually appears as a mottling on the sides and back of the neck in women.

The most characteristic early syphilide is the papular eruption. The papules are rounded elevations of a raw ham copper tint varying in size up to that of a 10c. piece. The surface may be smooth and shiny or covered with a fine scale. Around the angles of the mouth, nose, between the toes and fingers they become cracked, septic and occasionally eczematous. About the anus, vulva, scrotum, axillae they become swollen and oedematous and are known as condylomata. On the palms and soles they form rounded macules or small horny masses of a grey colour; the scalp becomes crusted from their presence.

The squamous syphilide may be covered with yellowish white scales which are either fine like pityriasis or coarse like psoriasis. They may occur anywhere but are most common on the palms. In the syphilide, the scales are thin on a brown-coloured base; removal of scales does not cause bleeding as in psoriasis; the areas affected in psoriasis are the knees, elbows, scalp and the extensor surfaces.

The pustular syphilide is distinguished from smallpox by the absence of severe general symptoms and from acne vulgaris by the absence of comedones or "black-heads."

The intermediary eruptions of the palms must be distinguished from psoriasis and eczema—psoriasis of the palms is rare and when it does occur is associated with a profuse psoriasis elsewhere and definite history of the disease.

Palmar eczema is usually bi-lateral, the margins of the patches irregular and broken up by islands of normal skin, the sides of fingers and the back of the hands will likely be seen to be involved as well, and the colour is reddish and associated with burning and itching.

Before going on to the late syphilides it will be well to mention affections of the epidermal appendages. In some instances, there is complete loss of hair over scalp, eyebrows, beard and moustache, but as a rule irregular thinning of the hair in ill defined areas occurs. In alopecia areata one finds round and completely bald patches. The most common affection of the nails is a dry onychia and a suppurative perionychia. As a rule two or more nails on each hand are involved; the plate may become discoloured, brittle, fissured or dotted over with small pits, sometimes the free edge becomes thickened and though not painful may lead to shedding of the nail. The perionychia usually affects several nails but is most frequent in the thumb and great toe.

Of the late cutaneous syphilides, the gumma will be taken as the type. These lesions are more persistent and are invariably followed by scars. The scars are wrinkled, and are not unlike a piece of tissue paper which has been crumpled up and spread out again. They are at first pigmented, then gradually become white but remain surrounded for an indefinite period by a brown halo. The gummata are nodular or subcutaneous. The nodular type appears chiefly on the face, hands, neck, shoulders and buttocks. As their position is somewhat determined by pressure, they are liable to occur on the nose from pressure of spectacles, about the waist in women, or in the garter area.

The subcutaneous is met with most commonly on the lower limbs, especially on the upper part of the calf—their position occasionally being determined by injury. In this stage syphilitic elephantiasis may be seen causing much swelling in such parts as the lips, penis, scrotum, vulva, nose and ears.

The late nodular syphilides have to be diagnosed chiefly from tuberculosis cutis, sycosis, acne necrotica, lupus erythematosus and rodent ulcer. The deep gummatous lesions have to be distinguished from varicose ulcers and Bazin's

disease. The diagnosis from lupus vulgaris may be exceedingly difficult; the chief points of difference are as follows:—The syphilitic lesion appears in adult or late life—the tuberculosis ulcer in early life. Syphilitic lesions may extend in a few weeks over an area which it would take lupus vulgaris years to involve. Tuberculous nodules are brownish yellow and semi-translucent. Syphilitic lesions are circinate or serpiginous in outline, while those of lupus are irregular. Tuberculous ulcers have a poorly defined or ragged border and are shallow. Syphilitic lesions tend to heal spontaneously while tuberculous ulcers if untreated are progressive. The scars from lupus vulgaris are thick, irregular and lead to contractures; and again tuberculous ulcers are unaffected by anti-syphilitic treatment. Another very interesting point is that syphilis will destroy bone, while lupus vulgaris will destroy only cartilage.

In the case of lupus erythematosus the lesions are pinkish and rarely infiltrated; they pick out the prominent parts of the cheeks, nose, the ears, the scalp, and occasionally the hands. The scars are much less noticeable than those of syphilis. Acne necrotica picks out the forehead, sides of the scalp and nose. The lesions are more inflamed, resemble acne pustules and have pitted cicatrices like smallpox. Epithelioma of the rodent ulcer type is apt to be confusing. The ulcer shows a hard and cartilaginous rolled edge with dilated blood vessels running over the edge. It develops very slowly sometimes taking years to reach the size of a 10c. piece.

In sycosis of the beard, the lesions are more acutely inflamed and lumpy. The surface is studded with pustules and may be dotted over with short stumps of hair which are packed with the fungus.

The varicose ulcer may offer difficulty, but it is usually single, near the ankle, and associated with varicose veins.

Gummatous ulcers are usually multiple near the knee and circular with punched-out edges.

Bazin's disease or erythema induratum may resemble gummatous ulcers. It is an infection of young women, occurring at an age when gummata are extremely rare. The common site is the posterior surface of the lower third of the leg, and on healing they leave depressed, deeply pigmented scars.

The diagnosis of mucous syphilides from various skin diseases which involve the mouth is important. The mucous syphilides may occur at any period during the course of the disease;

for description they may be grouped as early and late. One of the earliest signs is erythema and congestion about the tonsils and fauces. Later, superficial erosions, raised mucous patches or ulcers may appear on the buccal mucosa. The erosion resembles the base of a broken blister, of a dull red tinge or of a colour compared to milk spots or the track of a snail. The typical mucous patch occurs in the same situation as the erosion. It is slightly raised, soft and covered with an offensive discharge.

The lesions in the mouth have to be distinguished from diphtheria, herpes, dermatitis herpetiformis, mercurial stomatitis and exfoliating marginate glossitis. From diphtheria by the absence of constitutional symptoms and by the demonstration of the Kleb's-Löffler bacilli. From herpes by the fact that herpetic lesions affect chiefly the tongue, taking the form of superficial ulcers which coalesce to form polycyclical

patches, and are preceded by tingling or definite neuralgic pain. In dermatitis herpetiformis, the erosive lesions of the mouth are associated with herpetiform vesicles in the skin. In mercurial stomatitis, there is usually salivation and spongy gums. In the condition known as exfoliating marginate glossitis or geographical tongue, the lesions have the habit of altering their position. They have a greyish border and present no definite ulceration. They are not associated with other cutaneous symptoms nor with adenitis.

In the late mucous syphilides of the mouth, the diagnosis must be from tuberculous ulcers. In the latter the borders are not so indurated, and, instead of being deep and punched-out, are shallow and ragged. They are painful, develop more slowly than syphilitic lesions, do not react to syphilitic treatment and are generally associated with underlying tuberculosis in the larynx and lungs.

PYELITIS DURING PREGNANCY AND THE PUERPERIUM

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THE term pyelitis of pregnancy was applied to a disease arising usually in the latter months of pregnancy and which was believed to be peculiar to that state. It is still commonly used more as a matter of convenience than of correctness, for the condition is not limited to the pelvis of the kidney but may involve the other portions of the urinary tract. Moreover, it is not peculiar to pregnancy, nor even to women.

Pyelitis is always more common in women than in men, and more common to women in the pregnant state than at any other time.

A case of pyelitis in pregnancy was reported in 1840, but it was not until 1892 that attention was really called to it. Since that time it has become increasingly manifest that its occurrence is far more common than was at first supposed.

It is only within recent years that pyelitis in the puerperium has become recognized at all.

The predilection of this disease for pregnant women has been explained as being due to the dilatation of the ureters and pelvis from pressure

by the pregnant uterus and in proof of this attention is called to the fact that it usually occurs after the 5th month and is more common on the right side. This explanation would not, however, account for those cases in which it occurs on the left side, and in the early months of pregnancy nor for those developing in the puerperium. Moreover, one must remember that it is just at this period that other serious diseases are most common in pregnancy, viz., toxæmia. I believe that the size of the pregnant uterus will ultimately be found to be by no means the chief factor entering into its occurrence.

In pregnancy, pyelitis most commonly occurs in primigravida around the 5th or 6th month. In the puerperium it is said to usually come on late, but in my limited series of cases this was not so, as in five out of seven it appeared in the first week and one of the other two is doubtful.

In the vast majority of cases it is a *b. coli* infection but not invariably so as other organisms are sometimes found to be the cause, viz., *b. paratyphosis*, streptococci and staphylococcus au-

reus. The infection is believed to gain entry to the pelvis by one of the following ways:—

(1)—*The hematogenous route*—The bacilli which inhabit the bowel gain entrance into the blood, are excreted by the kidneys and lodge in the pelvis. The entrance of these bacilli into the blood can readily be explained when one considers how much the resistance of the tissues and blood may have been reduced (1) by constipation and colitis, (2) overstrain and worry of approaching maternity, (3) by the toxins present in the blood, (4) by prolonged and difficult labor.

(2)—*The ascending route*—Here the bacilli are said to enter the bladder from the urethra and thence up the ureters to the pelvis. Those opposed to this view point to the fact that cystitis is present in only 5-6% of the cases of pyelitis.

(3)—By direct infection through the intestinal lymphatics. There is a possibility of organisms passing from the intestine to damaged tissue in its neighbourhood and such damage may occur both in pregnancy and in the puerperium. In opposition to this theory it is pointed out that there are other organisms than the *b. coli* in the intestine while it alone seems to produce the pyelitis. Possibly this might be explained by the fact that the urine is more favourable to the growth of the *b. coli* than it is to the streptococcus and other organisms.

The bacilli having entered the pelvis of the kidney, in order that they should find settlement there, it is necessary that its resistance must have been lowered in some way. This weakness may have been brought about by toxins present in the blood or by hydronephrosis due to the extra work the kidneys are called upon for in taking care of the excretion of the mother and foetus or from dilatation of pelvis and ureters by the pressure of the pregnant uterus at the brim. As said before it is claimed by some that the greater prevalence of pyelitis in the right side is due to the tendency of the uterus to lie to that side and to turn on its vertical axis, thus causing kinking of ureters.

Additional damage to the kidney for the puerperal period may have been caused by prolonged and difficult labour with distended bladder.

In some cases during the puerperium the pyelitis is secondary to a cystitis, possibly from too careless use of catheter.

The symptoms of pyelitis vary with the severity of the case, but headache, fever, abdominal pain and aching in lumbar region, and tenderness over the kidney are fairly constant for all.

In the subacute or chronic type the symptoms may be quite mild and gradual in onset and not infrequently associated with cystitis.

In the acute cases the onset is sudden, often with chill or rigour. The fever rises suddenly to 103-104 or even much higher and the pulse is rapid.

There is acute pain in the abdomen which may be general or referred to one side, usually the right. The abdomen may be distended and rectus muscle held rigid. This may be associated with vomiting and marked constipation.

At times the temperature is very high and irregular. There is severe headache and repeated chills, suggesting a general septic condition. The urine is the chief diagnostic factor. In mild cases it may be plentiful and of low specific gravity; in acute cases scanty and of high specific gravity. It is turbid and acid in reaction and on examination shows pus and albumen varying with the quantity of pus. Bacteriological examination shows presence of quantities of the colon bacillus. Very occasionally one may find other organisms such as *b. paratyphosis*, *staph. aureus* or the gonococci.

There is a leucocytosis of 20,000 or 30,000.

Twelve cases of pyelitis have come under my observation comparatively recently.

Of these five occurred during pregnancy and seven during the puerperium.

Of the five occurring during pregnancy, three were of the subacute and two of the acute type, whilst of the seven seen during the puerperium six were acute and one subacute.

In eleven cases the right side was affected and in one the left. Of the cases occurring during pregnancy the onset was as follows; two in the second month, two in the 5-6th months and one in the 9th.

Of the puerperal cases, in one the onset was late. It was really a pyelonephritis secondary to puerperal sepsis. In another the onset was in the third month, but she gave a history of having run a temperature all through the puerperium. She left the hospital against advice and three weeks later had an attack of jaundice which soon cleared up, but she was in poor health throughout the time until the third month when the acute attack of pyelitis came on. It is possible that hers was a case of subacute pyelitis from the first week of the puerperium.

In the other five the onset was in the first week. The following is a short synopsis of the cases of pyelitis in pregnancy:—

(1).—A primigravida in the second month, the onset was sudden with severe pain in the right side and in the lower abdomen with pain and great frequency of urination. The right rectus was held quite rigid. Temperature was 101°. On examination the right kidney was found enlarged and tender. The urine showed presence of *b. coli*. This case was slow in recovery with a marked tendency to relapse.

(2).—A primigravida in her second month. The onset was slow with increasing frequency of micturition and a dull aching pain in the side. Examination showed tenderness over the left kidney and the urine was acid and contained both pus and the bacillus coli. The temperature never went over 100°. Her case was interesting as being the only one in which the pyelitis was on the left side. She did not tell me of her symptoms till after examination had shown pus in the urine.

(3).—A primigravida in the fifth month, the symptoms were so slight that the patient regarded them as only incident to her condition and the disease was first called to my attention by the presence of pus and a trace of albumen in the urine during a routine examination. Questioning elicited the fact that she had been suffering more or less with headache for some days and that she had a continual dull pain in the right side. There was quite marked tenderness over the right kidney. The urine contained *b. Coli*.

(4).—A multipara in fifth month with no previous history of pyelitis. The onset was very sudden and acute and resembled an acute abdomen so closely that it was first diagnosed as appendicitis. Her case was peculiar in that she never had a leucocytosis of over 12,000. It was a very severe case with much vomiting and ultimately labour had to be induced.

(5).—A primipara. This patient was seized with an attack of pain in the back and believing she was in labour came into the hospital. The pain subsided and she went to sleep that night. On the second day she again complained of pain in the back and on the right side. She had headache and fever of 102°, with all the clinical signs of pyelitis. The case cleared up in a few days. A week later she was confined and seven days later she had a relapse with temperature rising to 104° and headache but no pain. Her case cleared up again in a few days.

Of the puerperal cases the five having an onset in the first week were very similar in many respects. The onset was sudden with chill and

temperature rising suddenly to from 103°-105° with rapid pulse and complaint of pain in the abdomen and headache. The pain in the abdomen seemed in each case to obscure the pain in the lumbar region and as a result four of the cases were diagnosed as acute sepsis.

Further examination, however, showed no real tenderness over the abdomen and all showed tenderness over the right kidney, and the urine contained pus, albumen, and in three the *b. coli*. The fourth gave a pure culture of *staph. aureus*. Four cases ran a rapid course to recovery, the whole picture closely resembling that of the so-called abortive type of puerperal sepsis.

One case, however, was not only very severe, but prolonged, and with a marked tendency to relapse.

In this case, the patient, a primipara, was seized with a severe chill two days after a normal delivery, and the temperature rose to 104° and the pulse to 120. She had severe headache and complained of pain in the lower abdomen, especially above the pubis. The abdomen was not distended nor the uterus tender on pressure. She did not complain of pain in the lumbar region, but on examination there was found to be marked tenderness on pressure over the right kidney which was also found to be enlarged.

The urine, on examination of a catheterized specimen, was acid in reaction and turbid. It contained quantities of pus and colon bacilli. The temperature remained high for the first week with remissions and she had chills each day for five days. The temperature then dropped to normal and remained so for two days when it suddenly rose again and the patient passed through a period similar to the first but without chills and this was repeated a third time. Each attack was milder than the preceding. By the end of the fourth week the urine had cleared up and was practically free of the *b. coli*. The temperature gradually dropped to normal and remained so. Throughout the greater part of the course of the disease the patient was greatly troubled with profuse sweating, insomnia was marked and obstinate and with it was associated a mild form of delirium. The patient was discharged from hospital between the sixth and seventh week and has remained well ever since, a matter of one year.

It is notoriously dangerous to draw conclusions from such a short series of cases as this. But possibly one is justified in hazarding the following opinions:—

(1).—The pyelitis in the early months of pregnancy is not so uncommon as is supposed, and many cases escape notice altogether, both on account of the mildness of the symptoms and because the patient does not come under the observation of the obstetrician until the late months of pregnancy.

(2).—That these undetected chronic forms of pyelitis occurring during pregnancy may be the source of the acute trouble during the puerperium.

(3).—That there is great danger of mistaking pyelitis of the puerperium for acute sepsis. At least some of the abortive types of sepsis are cases of pyelitis which have undergone apparent spontaneous cure from the emptying of the pus from the pelvis of the kidney.

(4).—That it is very necessary to make a careful urinalysis in all cases of suspected sepsis during the puerperium and of acute abdomen in pregnancy.

COURSE AND TREATMENT

In very acute cases with very high temperature the disease may run a rapidly fatal course, the patient dying in 8-10 days. But in the great majority of cases the disease shows a marked tendency to recovery under simple medical treatment, though relapses are said to be common.

The treatment of pyelitis is very simple in most cases. The patient should be put to bed so that the body may be kept at an even temperature and the work of the kidneys reduced to a minimum. She should be kept on a fluid diet for a few days to help flush out the kidneys.

The main object in medication is to see that the urinary tract is flushed out with alkaline solution and this object is best obtained by the use of potassium citrate in large doses, viz., from 40-60 grains every two hours till the urine is alkaline when the dosage may be reduced but never to the extent of allowing the urine to become acid. The urine should be examined daily to make sure of this. After all symptoms have subsided for 3-4 days it may be discontinued.

Urotropin is not of value in acute pyelitis and Kidd says that in some cases it is dangerous, claiming that in one instance it caused the death of his patient. In only one of this series was any of the more heroic forms of treatment required. This patient was treated with urotropin for three weeks before the alkaline treatment was given. The fever disappeared in a few days, afterward the potassium citrate was given, but the patient's general condition was so bad that it was felt necessary to induce labour.

Urotropin and the acids are, however, of value in the chronic cases.

Brilliant results are said to have been obtained by catheterizing the ureters and instilling silver salts into the pelvis. But this can only be done by one who is an expert in the use of the cystoscope and is not without danger in the presence of the pregnant uterus, and in acute cases emptying the uterus may be necessary in very severe cases but is not often indicated nor always successful.

The use of serums has not been satisfactory. They fail for the same reasons as they have failed in the case of septicaemia. Autogenous vaccines may be of value in chronic cases.

Influenza Simulating Appendicitis—Dubs (*Schweiz. Med. Woch.*, April 13th, 1922) points out that during the last wave of influenza there have been several cases in which the symptoms at the onset of the disease suggested peritonitis with perforation of some abdominal viscus. He notes as remarkable the fact that he saw no such cases during the epidemics of 1918 and 1919, whereas of late they have been frequent. With regard to the differential diagnosis of genuine appendicitis and influenza complicated by severe diaphragmatic pleurisy or inflammation of the nerves of the abdominal wall, he points out that

appendicitis never begins suddenly, and that a temperature of over 39.2° C. at the onset of the disease in children is certainly not characteristic of appendicitis. The general appearance of the patient is instructive: in acute appendicitis the patient never looks feverish or shows conjunctival injection. A sudden onset with shivering and rigors is indicative of influenza rather than acute appendicitis, but the blood count is of little value in the differential diagnosis, as the leucopenia of influenza is a very uncertain phenomenon.—*Brit. Med. Jour.*, May 27th, 1922.

THE USE OF X-RAYS IN DISEASES OF THE SKIN

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IF the use of X-rays in the treatment of diseases of the skin is to be regarded as a scientific procedure, it must be based upon exact knowledge of the action which it produces on this tissue, and this action must be more or less uniform in its operation, so that it can be obtained and duplicated at will.

Fortunately, we are in possession of this information, and fortunately also the conditions are now such that dosage can be measured with great accuracy, so that the second condition is also fulfilled very exactly.

When normal tissue is exposed to a beam of X-rays the first effect is mild stimulation, and as the exposure is lengthened the effect passes through the various stages until necrosis and death of the cells results. And the point at which necrosis will take place can be determined with considerable exactness.

Hence in various diseases of the skin a dosage is selected somewhere between stimulation and destruction, depending upon the special requirement in that particular case.

The action of the rays upon the skin may be conveniently divided into two groups.

(1).—Early effects. The early effects are those which come on within about one month after exposure. If the dose has been a full one there will appear in from one to three weeks a slight congestion in the skin, which varies from a faint blush to vivid redness, but which is not accompanied by vesication. This is the so-called X-ray erythema, and is a normal result of a full exposure. It is the standard unit of measurement, and is called the erythema dose or skin-unit. Practically all other exposures are stated in terms of this unit, and it is important to draw attention to the fact that this is a perfectly normal response to a properly measured dose, and is in no sense a burn.

In some individuals this reddening is followed by deep brownish pigmentation, which may take weeks to disappear. This is due to the production in the skin of hæmosiderin. If granules of melanin are also present in the skin the deposit

will be almost black, and in that case the colour may be permanent.

The second in importance of the early effects is loosening of the hair, if the area exposed is in a portion of the body in which a growth of hair is present. This loosening of the hair may vary from the simple loosening of a few hairs to complete depilation of the area, or even to permanent alopecia.

In the late effects we need only mention for the purposes of this paper (1) Atrophy. If exposures are long continued atrophic changes may occur. This, if continued, goes on to the production of keratoses or the chronic dermatitis commonly seen on the hands of men who have been much exposed to X-rays.

Telangiectases frequently occur in skin which has been the subject of long continued treatment, especially if erythemas have been produced at the time. These telangiectases may come on months or years after treatment, and are usually permanent. They, therefore, introduce an element of risk in exposing certain parts of the body, such as the face and neck, and great care should be exercised not to produce an erythema in these regions. If the dosage is kept under the degree of erythema the danger of telangiectases is almost negligible.

Having in mind, then, the foregoing physiological effects, it is comparatively easy to group the commoner skin diseases according to the manner in which they respond to irradiation.

(1).—Diseases for the cure of which epilation is necessary or desirable. Among these the best example is *ringworm*.

The treatment of ringworm by X-rays has been in successful use for many years, and in England has been developed almost into an exact science. The scalp is shaved, or if that is not possible the hair clipped short; the scalp then divided into five areas, and these are then treated in rotation in such a manner that the entire scalp receives an evenly distributed dose, which is so measured as to cause a complete epilation. In about three weeks the hair all falls out, and the ringworm of the hair-follicle becomes a ringworm

of the skin surface, which can easily be destroyed by the usual applications.

Favus, being a similar disease is treated in exactly the same manner.

It should be noted that in both of these diseases the function of the X-ray is merely that of a depilatory. There is no means at our command of producing an epilation over a large area with anything like the ease and certainty which the X-ray offers. If the treatment has been exactly calculated and administered, the hair will grow in again in the ordinary manner. Accidents have happened, and probably will continue to do, but these are rare, and do not alter the fact that the most uniformly successful treatment of ring-worm is accomplished by the use of this method.

Sycosis.—Sycosis and folliculitis barbæ will be included under the one heading. Here we have an infected hair follicle to which it is difficult to actually apply any medicament in a manner to reach the infection.

There are two methods of treatment possible for this condition. The first consists in the epilation of the entire affected area as was done in the scalp. But if the infection is extensive, such a dose will be sufficient to light up a very acute exacerbation of the infection, and this may be severe. In my opinion, except in a few selected cases better results are obtained by treating this condition by small divided doses in the same manner as other chronic infections of the skin, which will be referred to shortly. When so treated, the results are excellent, but the danger of re-infection is ever present, and usually the treatment will have to be continued for some time in order to destroy all the foci.

Hypertrichosis.—The removal of over-growths of hair would seem to be a simple procedure, if judged by what has been said about the certainty with which epilation can be accomplished. And it is true that hair can be removed with a high degree of success, but when it occurs upon the face as a downy over-growth, this is not true, and the attendant dangers are so great that few will risk the method. When the over-growth is in the form of a cluster of stiff hairs, these can be easily removed, but it is very difficult to ensure their permanent removal. Here, too, the danger of disfigurement is real, and the method is not a popular one.

(2).—The second great group of skin diseases includes all those which are accompanied by ulceration of the skin, such as lupus,

epithelioma, rodent ulcer, varicose ulcers.

(a) *Lupus Vulgaris*.—There are many physical methods of treatment of lupus, and many of these are attended by such excellent results that it is difficult to decide which is the best. The X-ray offers an easy and inexpensive method of treating large areas, and the results are on the whole quite as good as can be claimed for any of the others, including Finsen light.

(a) *Epithelioma* of the skin should be considered in two stages.

(1).—Pre-epitheliomatous skin changes including senile warts and keratoses.

(2).—Definitely established epithelioma.

Having made this distinction we should next say with the Irish that the time to cure an epithelioma is before it has become one. The pre-cancerous roughening of the skin and later the small, raised, warty excrescence is too much neglected until it begins to grow or ulcerate. Until the latter has occurred the X-ray treatment of these conditions is one of the most satisfactory procedures in the entire field of therapy, and should be successful in 100% of cases. The treatment is very simple, devoid of danger, and three applications should be the maximum ever required.

If the second stage has been reached the treatment is more difficult, but if it is still limited to the skin, even then the treatment is very successful, seldom dropping below 90% of successes if properly applied.

Epithelioma of the lip may be included in this group if a slight addition is made to the general statement. If the epithelioma of the lip has not infiltrated deeply into the lip it can usually be successfully treated by unfiltered radiation, such as we are now discussing, but if infiltration is present heavily filtered radiation will be necessary, and the outcome will be much less certain. In all cases the sub-maxillary areas should be treated by heavily filtered X-rays.

Rodent Ulcer.—All that has been said of epithelioma applies equally to rodent ulcer. In general it may be said that a rodent ulcer will yield to treatment—if:—

(1).—It does not involve bone or cartilage.

(2).—It has not already been unsuccessfully treated by caustics, strong acids or X-rays or radium.

The important point in these cases is to produce a severe reaction at the first treatment,

if this is done healing will usually follow promptly. In my opinion, long-continued fractional dosage in these cases is the commonest cause of failure, and produces a condition in the ulcer which makes subsequent treatment exceedingly difficult.

(3).—The third group includes acute and chronic dermatitis. Under this heading may be considered the eczemas, psoriasis, acne vulgaris, furunculosis, onychia, carbuncle, etc.

Eczema.—Acute eczema with much exudation may be greatly benefited by very light stimulating doses of X-ray frequently applied. If benefit occurs it will usually be prompt and the reverse is also true, and if the condition is aggravated the treatment should be discontinued until the acute stage subsides.

Chronic eczema responds favourably to X-ray treatment in the majority of cases and except in industrial eczemas treatment will usually be followed by diminution of discharge, drying of the skin, relief of itching and irritation with permanent healing in the majority of cases. There is probably no more satisfactory group than the whole group of eczemas for treatment by X-ray.

Psoriasis.—Here the results are more erratic, and no safe prediction can be made as to the outcome of treatment. Some cases respond in a spectacular manner, while others apparently similar do not respond at all, and the conditions which determine this difference are not apparent. A fair percentage of cases, however, do receive such great benefit, that an experimental trial of the method is always justifiable. The type of treatment which we have found most beneficial has been moderately stimulating doses, unfiltered, corresponding to about one-half skin unit repeated every two weeks.

Acne Vulgaris.—I should like to include with acne vulgaris, such other chronic infections of the skin as chronic furunculosis etc. The treatment of these conditions is exceedingly satisfactory, and appears to be due to the property which X-rays have of causing a slight leukocytosis, and also of greatly stimulating the local

activity of the skin. In this way the local resistance to infection is increased and the body can successfully control the infection, although there is no direct bacteriological effect of the rays upon the infecting organism.

In this way boils can frequently be aborted if treated in the early stage, while chronic boils frequently respond to this method after all others have failed.

It is probably for the same reason that beneficial results are obtained in acne. In general there are two beneficial effects which occur. (1) The control of the infection and disappearance of the pustules. (2) Lessening of the scarring which has resulted from former pustules due to the property which X-rays have of causing the absorption of fibrous tissue in inflammatory areas. For these two reasons the method is highly useful, and if practised carefully is devoid of danger. The entire affected area must be exposed to an unfiltered dose of about one half skin unit, and this may safely be repeated once every two weeks for three times when the interval should be prolonged. As a rule the improvement will become noticeable after the second or third application, but the treatment will require to be continued for some time in order to secure a good result.

Carbuncle.—There are few results more satisfactory than the treatment of the ordinary carbuncle. The only modification which this statement requires, to our knowledge, is that in the very early stages of carbuncle, little is to be expected from treatment, and also that in that form occurring upon the back of the neck we have not seen nearly such good results as in the usual large carbuncle upon the trunk which is discharging from several craters, rapidly extending and usually very painful. In such cases the pain is usually relieved very promptly and the entire carbuncle diminishes rapidly after a single treatment and should be completely gone in less than one week. Very seldom is it necessary to make more than two applications. The technique used is three-quarters of an erythema dose without a filter, and this may be repeated in four days.

EYE CONDITIONS IN PREGNANCY

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THE following observations on eye conditions found during pregnancy and lactation are based on the study of such cases in private practice and in two active New York Hospitals in which for a period of over fifteen years, the writer has had charge of the eye service.

While studies of the eyes have been limited for the most part to cases in which troublesome eye symptoms have aroused the attention of the patient or her attendants, observations made in a considerable number of apparently unaffected eyes in the obstetrical wards have shown that pathological changes are present at times when no symptoms of sufficient consequence to disturb the patient have become manifest, or when such symptoms, if noted by her, have been passed over as of no importance or accepted as a part of the routine experience of maternity.

To some medical men the phrase "eye conditions of pregnancy" suggests albuminuric retinitis only. If the urine examinations show nothing wrong they are inclined to feel that no unpleasant experiences, including eye lesions of consequence, need be anticipated. This faith is not constantly justified, and I shall cite some evidence directly to the contrary and wish to outline the history of some examples of such eye conditions which have occurred among our cases.

In pregnancy the eyelids have with the rest of the body a tendency to pigmentation which is sometimes very striking. The occurrence of troublesome styes on the lids is quite frequent in the earlier months, and is common again during lactation.

The cornea and conjunctiva may give trouble, from outbreaks of phlyctenular disease, while weakness of various eye muscles manifests itself by failure of the accommodative power (ciliary asthenopia), perhaps by diplopia from weakness or spasm of one or more of the extra-ocular group, or in milder cases by headaches due to eye strain of this type.

One of the most common conditions is the

relaxation or paresis of the ciliary muscles occurring, often rather suddenly, either before or after delivery, or still oftener during the early lactation period. Patients who are hyperopic or astigmatic may experience a startling loss of accommodative power from this, with consequent inability to see clearly, especially to read or sew, and are usually much alarmed at their plight. Time and rest, bringing restored vigor, are all that are needed for most of these cases, although in some instances temporary or permanent use of suitable glasses to restore the focussing power of the eyes is indicated. Not a few of these cases, unexamined, pass, because of the visual defect, as instances of albuminuric retinitis.

Such cases occur most often in women who have had frequent childbirths or have lost much blood in delivery. Severe anaemia may be found under such circumstances and pathological changes, such as oedema of the lower lids or even retinal haemorrhages may result. It is to be remembered that in general anaemic or plethoric cases, the eye affections as a rule do not correspond to the underlying blood conditions. More often the amount of blood in the eye is the reverse of that in other parts. In anaemia especially we often have a conjunctival hyperaemia of an obstinate and persistent type. It is only in the high grades of general engorgement that the retinal vessels are found to correspond. Pulsation of the retinal arteries on slight pressure upon the eye is a striking sign of diminished blood pressure obtainable at times in cases of severe and prolonged anaemia. The retinal haemorrhages occurring in these cases are probably due to defective nutrition of the vessel walls as well as to faults in the blood itself.

The emotional influences of pregnancy and labor may be manifested by various eye symptoms clearly of hysterical type. There are visual disturbances ranging from retinal hyperaesthesia with exaggerated distress on use of

the eyes and photophobia or complaints of polyopia to disturbed vision with narrowing of the visual fields, and occasionally absolute blindness. In purely hysterical cases no evidence of ocular disease can be found but it is probable that in some of these so termed, the retinal elements are affected by circulatory or toxic disturbances of too low a grade to betray their presence through recognizable signs.

We have had several cases in which serious iritis occurred preceding labor in patients who showed no evidence of syphilitic disease. Several striking cases of hemeralopia were likewise observed, lasting through the later months of pregnancy. These patients had good central vision with no difficulty during bright daylight but became markedly amblyopic at dusk or in a poorly-lighted room. There was no evidence of retinal affection; the symptoms being probably due to poor nutrition of these parts; analogous to the retinal torpor and atrophy seen in retinitis pigmentosa. Such cases are not likely to be overlooked as they are much impressed with their symptoms and generally insistent on detailing them.

Eye conditions associated with albuminuria present our most serious problem. They may occur at any time but are most often found in the later months of pregnancy; partly as the result of stasis and mechanical obstruction to the kidney circulation, and partly as the result of parenchymatous nephritis.

The most important of these are the affections of the optic nerve and retina and the visual changes due to intra-cranial lesions. Temporary oedema of the lids may be looked for, but is absent in many cases. Often however there is oedema of the lower lids when no oedema is present elsewhere. Permanent oedema occurs here only when the ankles and legs are oedematous or general ascites is present.

Hyperaemia of the nerve-head, oedema of the retina, retinitis, neuritis, neuro-retinitis, and choked disc, with or without exudates and haemorrhages are among the important conditions revealed by ophthalmoscope and in our experience have led to definite recognition of a toxic renal affection in some cases which had shown nothing more than vague symptoms of headaches, etc, and in which urine tests were indecisive.

Neuritis and neuro-retinitis are usually ac-

companied by whitish patches of exudate and haemorrhages: these may be found together or occur separately.

The macula and the borders of the optic disc are commonly most affected, the fovea centralis remaining well defined as a dark or reddish-brown spot. Towards the periphery the exudates are few and small.

The whitish exudates may be few, slight, and scattered but usually form the familiar stellate figure around the macula and if the condition is prolonged, at a later stage these spots tend to fuse into larger masses of irregular form.

These appearances in the fundus do not differ from those found in cases of retinitis due to causes other than pregnancy but show of course much more tendency to complete clearing up after the uterus is emptied, and healthy kidney function is restored. Another striking difference is the comparative frequency with which the retinal oedema in these cases causes folds or actual detachment of the retina. This may be a single fold or may be a quite extensive detachment of this organ. These also tend to rapid and spontaneous cure after delivery. Two such cases have been under my observation in Fordham Hospital within the past six weeks. Impairment of vision was very marked in both cases, being reduced to little more than light perception when at the lowest. The retinal folds have become replaced and vision is slowly returning as the exudate disappears, having shown 20/100 at the last test.

The disturbance of vision in cases of retinitis and neuro-retinitis varies greatly. It is often slight but may be very pronounced especially if there are haemorrhages into the macula.

The ophthalmoscope often shows extensive changes in the fundus when we have comparatively slight effects on the vision. Sight is most impaired when the optic nerve is markedly affected. Much of this may be retro-bulbar and betray itself only later by the atrophic changes that follow. When I find only slight evidence of disease in the retina and nerve head with markedly affected vision I incline to a rather unfavorable prognosis. The nerve is likely to suffer permanent damage, often of a high degree, and I believe haemorrhages into such an affected nerve trunk are not uncommon; the staining and discoloration showing later on the atrophic disc are due to such haemorrhages.

Disorders of the color sense may be looked for when the nerve is affected but vision is commonly too much disturbed to make such a test of any value. Subjective color vision is sometimes reported by the patient who may state that everything has a greenish hue to her.

While unilateral affections of the nerve and retina are not uncommon from albuminuria due to other causes, both eyes have always been involved in cases caused by pregnancy in my experience.

Studies of the morbid anatomy of such eyes show that retinitis is mainly a disease of the vessels; involving not only the vessels of the retina but of all parts of the eye in severe cases. Other lesions are secondary, including the haemorrhages, oedema, folds and detachments of the retina, and the fatty degeneration causing the white spots—(*Knies*).

The retina suffers so much damage because the arteries are end arteries and thus have not the compensatory advantages readily afforded in other parts by a collateral blood supply. For this reason the non-vascular area of the macula shows the earliest changes such as the stellate figure due to fatty degeneration in the nerve fibre-layer. If haemorrhages appear early it is an evidence of either weak vessels walls or sharply toxic blood condition. In such cases haemorrhages occasionally occur in the conjunctiva.

Of the intracranial symptoms of albuminuria, paralyzes of the muscles have been mentioned. These lesions are probably caused by haemorrhage in the nerve roots or trunk. These paralyzes are not so common in pregnancy as in albuminuria due to other causes and usually recover rapidly. If they occur after delivery they are more probably associated with persistent and severe vascular disease and may be accordingly regarded as of serious import.

Uraemic blindness or amblyopia is much more common than muscular paralyzes. It is a part of the uraemia; is usually of rapid development, and the ophthalmoscopic appearances are negative even in cases of complete blindness.

In the purely uraemic cases the pupil is usually dilated but may be contracted. The light reflex is retained. If the pupil does not react, the optic nerve or primary optic ganglia are affected and some signs of stasis are usually in evidence in the optic papilla.

The blindness in uraemia is due to oedema or circulatory disturbance in the optical cortex of the occipital lobes. We have an analogue in the condition known as scotoma scintillans. This is a temporary blindness usually associated with some vertigo; the patient sees a sparkling, scintillating area formed of lines zig-zagging in irregular angles, other objects being invisible. It clears up in a short time leaving the patient with headache and sometimes nausea. It is explained as due to irritation of the optical elements in the cortex,—an irritation which according to the laws of projection is referred to the external world. Something of the same sort is often experienced before fainting attacks and in certain types of epilepsy the visual aura is probably of similar origin.

The fleeting character of the lesion explains the rapidity with which sight returns in these uraemic cases after recovery from the illness.

Cases of sudden blindness without uraemia may occur which show no signs of retinal affection at first, but more careful study will show narrowing of the retinal vessels, or pallor of the disc as evidence of retro-bulbar neuritis.

I append the history of one of the most striking of our recent cases at Fordham Hospital.

C.N., Age 36.—Family history shows cancer and tuberculosis. She has had four living children and three spontaneous abortions.

Present Illness.—Soon after becoming pregnant, patient noticed blurring of vision in the left eye. Following this the right eye behaved in a similar manner, so that when the patient was ten weeks *gravid*, she was completely blind. I saw her first in her eighth month. Eye examination showed complete double optic atrophy. It had the appearance of a secondary process. The lamina cribrosa was not visible and the vessels were noticeably small.

General physical examination showed a marked pyorrhoea alveolaris and signs in chest suspicious of a tuberculosis process—in the right lower lobe.

The urine output was normal and repeated examinations were negative. Blood Wassermann was negative; spinal fluid was under slightly increased tension but otherwise negative.

X-Ray examination showed no evidence of pathological lesion in skull; there being no evidence of increased intracranial pressure and the sella turcica being normal.

Blood chemistry examinations showed normal results.

Neurological examination was negative.

Because of the marked pyorrhoea, most of the teeth were removed and the others treated but there was absolutely no effect upon the vision of the patient.

This woman was delivered some weeks since of a healthy baby at full term. I re-examined the eyes a week ago. The pupils react slightly to light but she has regained no vision and I see no prospects of her doing so.

This case must be put down as one of severe optic neuritis in the early months of pregnancy due either to toxic causes of which we could find no trace remaining at the eighth month when she came under our care, or to the pyorrhoea. It is the fashion now to attribute so many ills to diseased teeth that perhaps some of you may incline to that explanation of this case. Teeth infections as an etiological factor are being overworked at present, I think, and I expect the pendulum of professional opinion will swing to the opposite in time. The case is at any rate a good illustration of the

need for team work between the obstetrician and ophthalmologist in cases where eye symptoms are manifested in pregnancy.

It is altogether probable that something worth while could have been done for this poor woman if her exact condition had been determined when her sight first began to fail.

A word as to the action to be advised in cases of albuminuric retinitis. I have asked the opinion of some of our most experienced men in this field of medical work; both obstetricians and ophthalmologists. One says: "When the kidneys are affected early in pregnancy abortion is called for and in the later stages premature delivery. Religious scruples interfere at times and I have seen this result in blindness in a few cases."

Another writes: "I regard a case of albuminuric retinitis that is getting worse in spite of treatment as an indication to empty the uterus without delay. The ocular complications of eclampsia, unless the case is one due to chronic nephritis associated with the pregnancy, do not call for such interference."

THE CAUSE, SYMPTOMS AND DIAGNOSIS OF NASAL SINUSITIS IN THEIR RELATION TO GENERAL PRACTICE*

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DISEASE of the nasal accessory sinuses holds much the same position in medicine to-day, as appendicitis held in abdominal surgery, thirty-five years ago, when the latter had emerged from the generic classification of inflammation of the bowels. So, now, from the old family diagnosis of catarrh, has evolved several separate species, of which perhaps the most common is sinusitis. Like appendicitis, this disease varies greatly in severity, from a mild, self-limited affection, to a rapidly fatal conflagration or a slow, smouldering fire whose presence can hardly be detected, but whose far reaching effects cannot be overestimated.

*Read before the Thunder Bay Medical Society at Port Arthur, Ont., March 9th, 1922.

A full discussion of sinusitis, its etiology, symptoms and diagnosis, would be too big a subject to be dealt with in an address of this kind. I shall, however, consider in brief the more important points which may be of interest to you as general practitioners.

The function of accessory sinuses of the nose is still a matter of debate, but it is generally accepted that they provide resounding chambers for the voice and also help to supply moisture to the inspired air.

You are all familiar with the anatomy and physiology of the nasal accessory sinuses, but a short resume may be helpful. The sinuses are bony cavities lined by ciliated epithelium and are normally filled with air which is con-

stantly being changed by the act of respiration. The frontal sinus and anterior ethmoidal cells open into the middle meatus of the nose under cover of the middle turbinate. The posterior ethmoidal cells and sphenoid sinus drain into the superior meatus. All the sinuses except the frontal open directly by means of ostia into the nasal cavity. The frontal, however, is drained by a canal which passes downward and backward to a trough formed between the uncinate process anteriorly and the bulla ethmoidalis posteriorly. At the lower end of this trough is found the ostium of the maxillary sinus. Hence it is, that in some cases, pus from the frontal sinus may drain into the antrum which then acts as a reservoir, without necessarily participating in the infection.

The contents of the sinuses are normally sterile, but their lining mucous membrane has considerable power to resist infection so long as the ventilation and drainage is freely maintained. People living or working in dusty atmospheres constantly inhale bacteria, but these usually cause no trouble in the sinuses, unless the resistance of the patient be already lowered by some constitutional disease or there be some obstruction to drainage.

Infection of the sinuses occurs in every attack of acute coryza but the influenza bacilli are the most formidable adversaries against which the mucous membrane of these air chambers has to contend. They are the storming troops of the invading host, and, having broken down the barriers of defence, they depart, leaving an army of occupation composed of the ordinary pyogenic bacteria, such as the staphylococci, streptococci and pneumococci, to carry on. Thus it is, that so many cases of maxillary and frontal sinusitis, date the origin of their trouble from an attack of 'flu or grippe. In the case of the antrum, there is also another possible source of infection, namely, the infected roots of the upper molars and bicuspids which come into close contact and, in a few cases, perforate the floor of the sinuses.

As a predisposing cause of sinusitis, nasal obstruction holds the first place. It may be due to a deflected septum pressing against the outer wall of the nose, an hypertrophied turbinate or a large bulla ethmoidalis blocking the middle meatus. In a few cases, new growths, such

as sarcoma, or foreign bodies are accountable for the obstruction. The second factor which predisposes to infection is the small size and mal-position of the ostia, as in the case of the maxillary and sphenoid sinuses, which can only be dependent when the patient is recumbent. Heredity exercises no direct influence, but there is reason to believe that many children and even infants are infected, and develop either acute or chronic sinusitis as a result of a similar disease from which their parents are suffering.

Infection of the sinuses, however, is usually encountered after the age of puberty for the reason that the frontal and sphenoid remain undeveloped until the sixth or eighth year. Suppuration, however, frequently occurs even in small children as a complication of scarlet fever, measles and diphtheria. It should always be suspected in cases of obscure pyrexia, especially when an examination of the lungs, ears, and throat are negative. The persistence of a nasal discharge in children after the removal of tonsils and adenoids, should always lead the physician to suspect some sinus involvement and especially if the discharge be more profuse from one side of the nose.

The purulent discharge from the sinuses may either be blown out through the anterior nares or pass backwards into the naso pharynx, from which it is expectorated by the patient. In many cases, however, the discharge reaches the larynx, where it sets up a chronic laryngitis or a descending bronchitis, while in others in which the pus is swallowed symptoms such as loss of appetite, nausea and vomiting occur. The discharge from the anterior nares has been shown by C. P. Holmes to be the cause of recurrent attacks of facial erysipelas.

The presence of acute sinusitis is usually accompanied by headache, discharge, tenderness and changes in the nasal mucous membrane. Headache is generally the most prominent symptom, either a dull ache or neuralgic in character. It is aggravated by bending or stooping, and by the use of tobacco and alcohol, but it is not often affected by reading. It has, as a rule, a certain periodicity in its onset and duration. Many cases will state that the pain starts soon after breakfast and persists until about four o'clock, the relief frequently accompanied by a discharge of pus from one

side of the nose. The site of the pain gives some slight indication of its source. If due to frontal or maxillary sinusitis, it is referred to the supra orbital region of the same side. In ethmoidal suppuration, the pain is felt between the eyes or on top of the head and in sphenoid inflammation, the pain is usually occipital. The discharge, which at first may be watery soon becomes thick and yellowish, due to the presence of pus. It may be blown out in great quantities through the anterior nares, but in many cases, flows entirely into the naso pharynx where it may cause an acute otitis by spread of infection up the eustachian tubes, or a pharyngitis. The latter condition is frequently mistaken by the patient and also by the physician for tonsillitis, whereas the tonsils may not be affected at all. In antrum disease the post nasal discharge occurs generally during the night, and the patient finds a collection of muco pus in the back of the throat on rising. This is sometimes so difficult to expectorate, that attempts to dislodge it may produce vomiting. Tenderness is usually most marked in frontal sinusitis, and is elicited by pressure over inner roof of the orbit. In acute maxillary sinusitis there may be tenderness over the antrum or in the canine fossa. The changes in the mucous membrane consists in either a hypertrophy, with or without the formation of polypi, or an atrophy. The latter may be a late stage of the former.

The acute exacerbations of chronic sinusitis are similar in manifestations to a simple acute attack except that there remains through the latent periods some chronic obstruction in the nose due to congestion of turbinates or the presence of mucous polypi.

Evidence of a latent infection is also given by the excessive use of handkerchiefs, frequent colds and sore throats or frequent headaches with perhaps occasional dizzy spells. As in the acute attack, these symptoms are aggravated by the use of tobacco and alcohol. I have seen many cases, too, in which the most prominent subjective symptoms was a ringing in the ears due to a low grade infection of the middle ear and tube.

There are two forms of non suppurative sinusitis in which the symptoms are due to mechanical irritation or to low grade toxæmia. One form called vacuum sinusitis is caused by the

absorption of air in the sinus of which the osseum has been closed. This condition most frequently occurs in the frontal sinus on account of its long canal and is characterised by severe supra orbital headache, increased by efforts to read and associated with tenderness on pressure over the pulley of the superior oblique muscle. The second form of non-suppurative inflammation which most frequently affects the ethmoids or the sphenoid is called hyperplastic sinusitis. The etiology is unknown although recently the absence of certain vitamins in the food has been suggested as a primary cause. This disease is most insidious in its onset and may lead to serious results through the involvement of the optic nerve. The most frequent symptoms of this condition is an intractable neuralgia of the trigeminal nerve sometimes simulating a tic douloureux.

The constitutional symptoms which accompany sinusitis, are usually mild in character, although in children high temperature and often delirium may occur. In long standing cases, a general run down condition of the patient is frequently found, associated with anaemia and loss of weight, inability to concentrate. This may lead to severe forms of neurasthenia. W. M. Mollison of Guy's Hospital, reports two cases in which complete loss of memory resulted from a chronic maxillary sinusitis.

The role of focal infection which has come into such prominence during the last five years is one that particularly applies to disease of the accessory sinuses. The results of this focal infection are seen in cases of multiple arthritis, recurrent attacks of iritis or conjunctivitis, retinitis, optic neuritis, which may go on to optic atrophy and complete blindness. In many cases of fatal meningitis, autopsy shows the site of primary infection to have been the accessory sinuses. Orbital cellulitis has frequently been reported as a direct result of the spread of infection. Obscure cases of abnormally low blood pressure have been found to be due to a focal infection in the sinuses, and in two cases of bronchial asthma I was able to give relief by draining infected antra.

The diagnosis of sinusitis is in some cases very simple, while in others only repeated examination by an experienced rhinologist will suffice to reach a conclusion. The history of

long standing headache should always suggest the possibility of sinus disease, particularly if the pain is periodic, worse on stooping or aggravated by smoking and alcohol. A post nasal discharge may not be discovered without close inquiry, but its presence should be considered pathognomonic of sinusitis. The amount of discharge from the anterior nares may be roughly estimated by the number of handkerchiefs required in a day. Examination of the nares frequently reveals the presence of pus in the middle meatus if the antrum, the frontal, or anterior ethmoidal cells are affected and in the superior meatus if the sphenoid or posterior ethmoid cells are diseased. The posterior pharyngeal wall should always be examined and the presence of muco pus or hypertrophy of lymph follicles will direct one's attention to the accessory sinuses. In latent disease where the discharge is very scanty or absent, the result of infection may often be seen in the hypertrophy of lymphoid tissue extending down both sides of the posterior pharyngeal wall just behind the posterior pillars, or in excoriations of the anterior nares. The presence of a dry tickling cough, worse at night, can often be explained by irritation of a nocturnal post nasal discharge.

X-Ray examination is a great boon to the rhinologist of the present day. It should be used in every case where there is any suspicion of disease in the sinuses. It not only aids in the diagnosis but in many cases, definitely locates the disease. The interpretation of the plates, however, should be in the hands of the physician, as only by bearing in mind all the clinical evidence while reading the plate, can the diagnosis be made. The skiagraph is of particular value in determining the location and size of the maxillary and frontal sinuses, the thickness of their mucous membranes and the presence or absence of pus. The exposure should be made in three positions, first with the nose and chin, second with the nose and forehead resting on the plate and the third taken laterally. Occasionally a fourth, or axial position is helpful. In this, the plate is held under the patient's chin. Its purpose is to reveal the condition of the sphenoids. Transillumination is another means of examining the sinuses, but its results are often misleading. It

is successful in comparing the translucency of the antra or the frontals. Suction by means of a mechanical pump or a rubber bulb has been used both in the treatment and in the diagnosis of sinus suppuration. When pus is not found in first examination of the nares, it may sometimes be aspirated from the sinuses.

In conclusion I would like to cite a few examples of sinusitis in which one or more classic symptoms and signs were either absent or overshadowed by some other condition, but in which the diagnosis was confirmed by operation.

Case 1.—Boy, nine years—tickling cough for weeks, history of post nasal discharge, nasal obstruction due to hypertrophy of inferior turbinates, *no headaches*, *no pus* visible in nose or throat but post pharyngeal wall appears granular. Transillumination appears negative, X-ray shows left ethmoids and left antrum cloudy. Diagnosis:—left maxillary sinusitis and ethmoiditis.

Case 2.—Male, Age 29—Post nasal discharge for three years, worse in morning, *no headache*, or tenderness, tinnitus in left ear at times, nasal obstruction at night, *no sore throat*. Transillumination negative, X-ray shows left antrum cloudy. Diagnosis:—left auxiliary sinusitis.

Case 3.—Male, Age 28—Right ear feels stuffy and patient has considerable post nasal discharge. Left inferior turbinate hypertrophied *no headaches*, *no pus* in nose or throat but posterior pharyngeal wall congested and lymph follicles hypertrophied. X-ray shows left antrum cloudy. Diagnosis:—Left maxillary sinusitis.

Case 4.—Female, Age 30—Neuralgic pain over the eyes, worse on right side. Had glasses prescribed without relief. *No pus in nose* on examination or with suction. X-Ray shows both frontals and antra clear, ethmoids negative, infraction of middle turbinate and curettage of hyperplastic ethmoids gave complete relief.

Case 5.—Male, Age 42—Complains of blurred vision in right eye, coming on suddenly. Examination reveals a detached retina, no pus in nose, x-ray negative, septum deflected with hypertrophy of the right middle turbinate which when removed exposed a hyperplasia of the posterior ethmoids and sphenoid. Eventration of the diseased cells was followed by rapid absorption of the fluid under the retina and improvement in vision.

A SIMPLE CROSS AGGLUTINATION TEST FOR BLOOD DONORS, USING HEMOLYSED BLOOD*

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THOUGH it is now almost six years since the writer had the privilege of learning the art of Blood Transfusion while a Surgical Interne under Dr. C. K. P. Henry, at the Montreal General Hospital, and although much has been written on the subject since that time, there are still many smaller places where it is not being done, and there are many men who graduated before it was taught in the schools who hesitate to make use of this life-saving measure.

Since a blood transfusion may be given almost as simply as an intravenous saline, it must be that the hesitancy is due to difficulties in the way of testing the blood.

The recent placing on the market by a reliable firm of human Serum II and III makes very easy the procuring of the wherewithal to do the grouping test, and the simple cross agglutination test about to be described requires no centrifuge, and as a rule no microscope, and can be done by a country doctor in the remotest farmhouse.

The grouping test, while not a necessity, is a convenient way of rapidly selecting a volunteer of the same group as the patient, who is further tested, unless the risk of delay is greater than the risk of incompatibility, by a direct cross agglutination test between his blood and that of the patient. The old laborious method of crossing cell suspension and centrifugalized serum has largely been replaced by various modifications of the Rous and Turner (1) test where 9 parts of citrated blood of one are mixed with 1 part of citrated blood of the other and *vice versa*. Examination under the microscope reveals any clumping, if present, amidst 9 times the amount of unclumped cells. While a good test in the hands of the expert, these 9 extra parts of cells are confusing and very liable to lead the novice into error. It was an effort to eliminate them in the

Rous and Turner test which lead to the development of the present method. Recalling methods of destroying red cells, freezing and thawing was the first to present itself, and small thin walled tubes such as used in Wassermann work were found to stand rapid freezing and thawing of

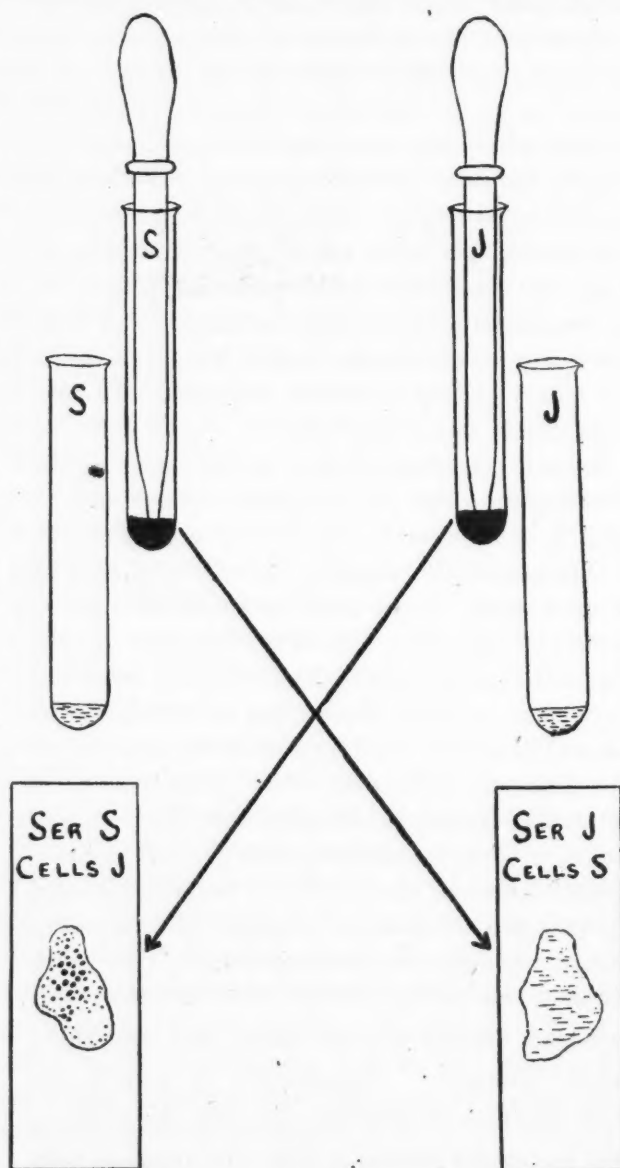


FIG. 1.—Diagram of the test. Rear tubes—citrated whole blood. Forward tubes—the same hemolysed, which is then poured out on the corresponding slides in front.

*A preliminary report of work done while House Surgeon and Resident Obstetrician at Harlem Hospital (Bellevue and Allied) New York, where the frequent urgent need of a donor demanded the development of a simple bedside test.

their contents without breaking. The technique of the test is as follows:

Equipment necessary:—

- 1 small vial of isotonic sodium citrate solution (3.85%) with a medicine dropper in its stopper.
- 4 small test tubes $2\frac{3}{4}$ inches long.
- 2 nipped pipettes long enough to reach to the bottom of the test tubes (medicine droppers are too short, they may be made from glass tubing or by cutting down plain ungraduated urinalysis pipettes)

placed in front of their corresponding tubes.

Both donor and patient are bled 5 drops into their respective citrate tubes and the tubes gently tapped with the finger to ensure good mixing. If the blood is dark, it should be shaken till it gets oxygenated and bright red in colour. *See Fig. 1.*

A nipped pipette is now placed in each tube and almost all the blood in one tube drawn up, the pipette removed from the tube, and any blood on its sides carefully removed with moist cotton. This blood is now deposited at the bottom of

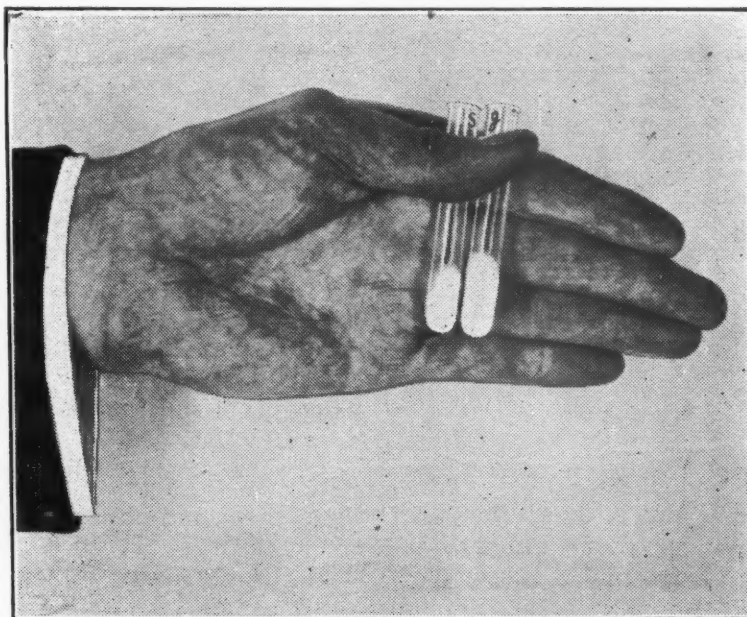


FIG. 2.—Showing the tubes of blood immediately after freezing, and before the removal of the ethyl chloride snow. (Photo by Natural Resources Branch for Dominion Dept. of Health).

- 1 wax pencil.
- 1 blood sticker (a No. II Hagedorn needle in the stopper of a small bottle of alcohol).
- 2 slides.
- Absorbent cotton.
- Ethyl Chloride (The Gebauer screw valve tube is most economical).

Everything except the ethyl chloride may be carried in a small box in the pocket together with Serum II and III for group testing.

Two tubes are initialed at the top for both donor (Mr. Jones) and patient (Mr. Smith). One tube for each party is placed in the back row of a test tube rack, or in a tea cup, and a drop of isotonic citrate placed in each. The empty tubes are placed in front of their respective mates, either in the rack or in a second tea cup. Two slides are marked—"Serum Jones": "Cells Smith" and "Serum Smith": "Cells Jones," and

the corresponding empty tube in front, and the pipette carefully withdrawn so as not to get any blood on the side of the tube. The pipette is replaced in its original rear tube, and the process repeated with the other specimen.

We now have two tubes of blood from each case. The larger volume in the bottom of the clean front tube is to be laked.

The shirt front is unbuttoned, the two front tubes are picked up in the left hand, the wax initials being turned to face each other to avoid being rubbed off. The right hand now directs a spray of ethyl chloride against the lower part of the tubes till the blood is frozen through (told by looking down the tubes). *See Fig. 2.*

The snow is now removed with the handkerchief and the tubes held in the axilla to thaw. Even after the first thawing considerable hemolysis is in evidence, but the process is repeated three times to ensure complete cell

destruction. If a jet from the ordinary ethyl chloride tube is used, one should stand in a current of air to avoid feeling light-headed. After the tubes are warmed in the axilla, the contents of each are dumped out on the corresponding slide. This clear hemolysed blood is referred to as the "serum" in the test, for simplicity. The pipette from the opposite whole blood tube, which will carry a small quantity of blood on its tip, is now stirred around in each pool of "serum"; thereby mixing in the opposite cells. The slides may be picked up and rocked a few times when agglutination, if present, will be apparent in a minute or two. See Fig. 3.

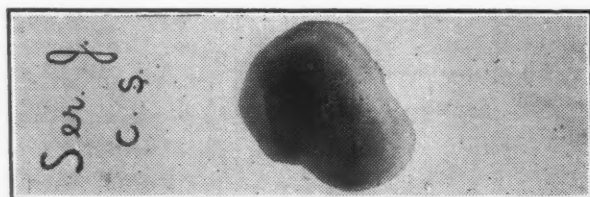


FIG. 3.—Photo of an actual test showing the MACROSCOPIC AGGLUTINATION.—Retouched on account of the faint impression made by the red color on a photographic plate. (Natural Resources Branch for Dominion Dept. of Health).

If a slide appears doubtful, examination of the top of the drop (Farmer) under the microscope will differentiate between agglutination and rouleaux formation. The latter is slower in appearing and the granules are smaller. If no

microscope is available, as was the case in advanced dressing station work in the army,* the donor with a doubtful test should be rejected. Except for the reddish tinge to the clear fluid of the drop the test resembles the macroscopic group test with Serum II and III.

Numerous cross agglutination tests by this method between persons of known blood groups showed marked agglutination between incompatible bloods and no agglutination where none was expected. In four cases where this test showed no agglutination on either slide and was the only cross agglutination test used, transfusion operations were successfully carried out.

Where no Serum II and III is available, as is likely to be the case in many places where the doctor finds himself suddenly confronted with an ectopic pregnancy, placenta prævia, or other grave hæmorrhage case, this test is the only one necessary.

In conclusion, the blood of a prospective donor may be tested out in a few minutes with no unusual equipment save a few small test tubes and a couple of cut down urinalysis pipettes.

REFERENCE

- 1 ROUS AND TURNER. *Jour. A. M. A.*, June 12, 1915.

*GUTH. Blood Transfusion in a Field Ambulance. *B. M. J.*, June 22, 1918.

The Vital Capacity of "Cardiacs".—The vital capacity of fifteen so-called "cardiacs" who were afflicted with aortic regurgitation and mitral stenosis was investigated by Russell Burton-Opitz, New York, by means of a spirometer devised by the author for the purpose of registering the tidal air as well as the inspiratory or expiratory quantities of air of the larger mammals. By means of a special valve, permitting a reversal of the recording mechanism, practically unlimited quantities of air may be made to pass in a continuous stream through this instrument. The vital capacities recorded closely approach the calculated normal values, and in several instances actually exceed them. The lesions were all well compensated for, although care was taken not to select these cases in a

manner to favour the results. Hence, it is concluded by Burton-Opitz that a marked decrease in the vital capacity actually signifies cardiac decompensation, and that the percentage indicating its reduction may be employed as a measure of the failure to compensate. The assertion that this factor, embodying the vital capacity, portrays the condition of the patient more plastically than the blood pressure and pulse rate is questionable, he says, although it must be granted that it constitutes an important objective record in the diagnosis and prognosis of practically all cardiac disorders. It is to be emphasized, therefore, that the vital capacity does not suffer a material change in those "cardiacs" whose compensation is adequate.—*Jour. A. M. A.*, June 3rd, 1922.

Case Reports

BRONCHO-PNEUMONIA FOLLOWING
ASPIRATION OF ZINC STEARATE
POWDER

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STEARATE of Zinc forms the basis of many dusting powders used for infants nowadays, and it is perhaps one of the very best powders for this purpose. Yet with its increasing popularity there have occurred in recent years from time to time, several accidents of a most serious nature, and not infrequently with a fatal termination. These accidents are due to the aspiration of the fine zinc stearate powder inducing a broncho-pneumonia with the most alarming symptoms. In all the cases the children had been allowed to play with the box containing the powder while the mother was changing or washing the baby. The case which I am about to cite which threatened for some days a fatal ending, is one of this type and will, I hope, emphasize the great danger that lurks behind a careless handling of an innocent looking dusting powder.

Baby M., 8 months old, was allowed to hold the box of dusting powder while his mother was changing him. The cover was not fastened tightly on the box and the baby, while shaking it, got some of the powder into his mouth. He gagged and immediately spit out most of it, but was at once seized with an irritating cough which came with each expiration. I was immediately notified of the occurrence by the mother who was not unduly alarmed at the child's condition. Previous experiences, however, had taught me that we were dealing with a very serious condition and I went at once to see him. By the time I arrived, which was not more than ten minutes after the accident, he was already almost exhausted with coughing, had rapid small pulse of 150, respiration about 60, with a short sharp irritating cough which came with each expiration. Gastric lavage with 1% sodium bicarbonate solution was done at once. This brought a little of the powder up from the stomach, and also caused him to cough up a small quantity from his lungs. The child was then put to bed, and the cough controlled with rather large doses of paregoric. At the end

of 16 hours, respirations were 107 to the minute and the pulse 160, small and feeble. The temperature was only 99. Examination of the lungs showed the presence of broncho-pneumonia over the entire right lung behind, in the axilla and over the lower lobe in front, evidenced by fine crackles in these areas. Despite all this and despite the exhaustion of the child from the excessive respiration and the coughing, he was bright, interested in his surroundings, and carried to his mouth any object placed in his hands, quite forgetful of his experience of the previous day. Mustard paste every four hours to the affected parts, whisky in small doses, and continued administration of paregoric when the cough was troublesome were ordered for that day. The child slept but little during the next twenty-four hours, still his disposition was but little affected by his illness, so different in this respect from true bacterial pneumonia with fever and toxæmia. Toxæmia in this disease is noticeably absent and the temperature is rarely elevated; the distressing cough and the extremely rapid respirations were the salient features.

After 48 hours, the signs in the right lung remained unchanged, and now there appeared similar signs at the base of the left lung posteriorly. The pulse was now a little stronger, though quite as rapid, and the respirations were still well over 100 per minute while the child was awake, but dropped down to 60 per minute during his short intervals of sleep. Medication was continued as before.

On the third day, the respirations were 70 per minute, the pulse much stronger rate 120, temperature 100. The signs in the right lung had almost entirely disappeared while those in the left remained unchanged. It was now obvious that the patient was improving.

On the fourth day, the respirations were 50 to 60 per minute and the chest signs were clear except for a small patch at the left base posteriorly.

On the fifth day the respirations were 40, pulse 100, temperature 98 and the chest clear. The child has been well since.

The outstanding features in this case were the harrassing cough, the extremely rapid respirations, the moderate temperature reaction, the absence of toxic phenomena, the greater involvement of the

right lung and the very rapid and complete recovery.

So far as I am aware, there have been no accounts in the literature of this condition, although some cases have been reported at the meetings of the Section on Pediatrics of the New York Academy of Medicine. Three such cases came under my observation in New York. The respirations in these were much more rapid than in the case which has just been cited. It is not at all uncommon to see respirations nearer 150 to the minute in this type of broncho-pneumonia. Possibly the paregoric given in this case served to control the rapidity of the respirations to some extent. The disease runs an almost febrile course, due to the fact that the pneumonia is caused by an inert substance which produces an intense peribronchial and perialveolar leukocytic infiltration in an attempt to break up and carry away the fine particles of powder which have lodged in the lungs. Once this has been accomplished there is nothing to prevent a rapid return to normal. The reason for the greater involvement of the right lung is obvious and requires no explanation.

This case has been presented chiefly for the purpose of drawing attention to the serious consequences of aspiration of zinc stearate and to the increasing danger of the accident becoming more common with the growth in popularity of this dusting powder. Physicians should avail themselves of every opportunity of warning mothers against allowing their infants to play with the powder box; it is a common practice, as many mothers will admit and, as we have seen, is by no means without its dangers.

PHLEGMONOUS GASTRITIS WITH CIRRHOSIS OF LIVER

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PHLEGMONOUS gastritis was first described by Benel in 1656. Up to 1904 Robson and Moynihan had collected 85 cases. In 1919 Sundberg was able to quote 215 cases of which 17 were under his supervision. Since 1919 five additional cases have been reported.

The case we have to report is especially interesting since none of the others mentioned were associated with cirrhosis of the liver.

History—The patient was a man aged 51 years, a coal miner and later a labourer, but he had been out of work for the past three months.

He had always enjoyed very good health save that one year ago he was sick in bed for one week, with an attack of acute abdominal pain with vomiting and later evacuation of tarry stools.

He had been up and about until Jan. 24, 1921. That night he felt chilly; Jan. 25 he was constipated and had pain about the umbilicus. Jan. 26 he vomited nearly all day. He could not eat anything and his bowels were obstinately constipated.

On Jan. 27th patient was admitted to hospital with severe abdominal pain and obstinate constipation of the bowels. Patient vomited once but there was no mention of the character of vomitus.

Both his wife and son said he had never been an alcoholic; at most, he might take an occasional glass of beer.

Physical Examination—Patient was an elderly male lying on his back with updrawn knees, breathing rapidly with sighing respirations, evidently quite shocked and suffering great pain.

Abdomen—Showed considerable rigidity (not board-like) of the rectus muscles. On percussion it was dull except over the stomach. Evidently considerable fluid in the peritoneal cavity. W. B. C. 23,000. Wasserman and blood cultures were not taken. R. 32, P. 126, T. 102. Patient became progressively worse and died the night of admission.

Autopsy—The peritoneal cavity was found to contain about 1 litre of dirty, pinkish grey, turbid, purulent fluid. There were flakes of fibrin over some of the intestinal coils and over the spleen. The peritoneum was moderately injected throughout.

The liver in the mammary line was about 6 cms. above the costal margin.

The stomach was distended with gas, the wall felt thickened, softened and pulpy.

The spleen weighed 710 grams. Its increased size was apparently due to passive congestion.

The liver weighed 1360 grams. It was very firm and the surface had a very markedly nodular appearance and feel. The nodules were all about the size of peas and the intervening areas were depressed and very fibrous.

The cut surface showed the capsule thickened especially over the depressed areas, and myriads of round nodules about the size of peas separated by strands of dense fibrous tissue.

Microscopically—The capsule bulged over mass-

es of liver tissue and dipped down to become continuous with fibrous scarred areas about the portal radicals.

Throughout there were islands of several imperfectly formed liver lobules surrounded by a mass of fibrous tissue showing marked lymphocytic infiltration.

The liver cords showed a moderate amount of fat in medium sized droplets chiefly peripherally.

Gastro Intestinal Tract—The oesophagus showed several varicose veins. The stomach contained about 8 ounces of brownish turbid fluid. The mucous membrane was a dirty grey in colour and the rugae were absent.

The wall was markedly thickened to about 2 cms. and was soft and pulpy throughout. On squeezing, a yellowish fluid exuded from the cut surface.

About 2 and 5 cms. from the pyloric valve, were two healed ulcers each about 1 cm. in diameter. They were of the same colour as the surrounding stomach wall but the bases were depressed and the margins thickened and rounded.

The lymph glands of both the lesser and greater curvatures were moderately enlarged.

The remainder of the gastro intestinal tract was apparently normal. Microscopically—The submucosa was very markedly oedematous and somewhat necrotic and the entire wall was infiltrated with polymorphonuclear leucocytes from the mucosa out to the serosa which was covered with a fibrinopurulent exudate.

The entire wall was thus involved though the submucosa was more necrotic than the rest.

The lymph glands showed the lymphoid tissue relatively reduced in amount. The sinuses were very dilated and engorged with polymorphonuclear leucocytes, endothelial and plasma cells.

Bacteriology—A hemolytic streptococcus was isolated from the blood, the peritoneal cavity and from the stomach wall.

Discussion—This, then, is a case of diffuse phlegmonous gastritis, occurring in association with a cirrhosis of the liver and induced by a hemolytic streptococcus.

Sundberg collected 95 cases in which the bacteriology was worked out and 71 of them showed streptococci.

Why the bacteria should select the stomach and how they gain access to the submucosal tissue is not definitely understood.

Sundberg quotes 17 cases which he personally examined, all of which showed a chronic gastritis with deficient gastric juice. Two cases mentioned

had a coexistent carcinoma of the stomach and one had chronic nephritis. Only 25% of the cases had been alcoholics.

The case above had a marked portal cirrhosis with a resultant passive congestion of the organs drained by the portal circulation. This was demonstrated by the large passively congested spleen and the varicose oesophageal veins.

The bacteria might reach the submucosa by the general circulation but it seems more likely that they enter through minute erosions of the mucous membrane.

In this connection it is interesting to note that at autopsy two healed ulcers were found which probably accounted for his illness and hæmorrhages of a year ago.

Undoubtedly, also, the passive congestion of the stomach would greatly reduce the resistance of the mucosa to infection and resultant erosion. *From Dep't. of Pathology, Toronto General Hospital.*

BULLETIN OF HARVEY CLUB, LONDON

Infected Antra—Male, age 20, consulted a specialist because of a piece of foreign matter in the eye. He required instead an operation for drainage of both antra through the mouth. Ten days or so afterwards the patient was septic, with a large area of cellulitis extending from the face to four inches below the clavicle. This suppurated and was drained. Both parotids suppurated, one requiring drainage through the cheek. The spectacle of general sepsis, with pus from nose, mouth and an open abscess, with marked anemia and disability should cause one to hesitate before resorting to this operation until palliative measures have been tried.

E. SPENCE.

Scarlatinal Septicemia—Case number 2980—Mrs. L. C. age 27, came from northern Ontario to be delivered at her father's home. Normal delivery except for moderate vomiting at the onset of labor and a tear of the perineum, which was immediately repaired, using chromic catgut. Temp. immediately after labor was 102 degrees with a pulse of 120. Death occurred 40 hours after delivery.

Her nurse developed scarlatina one week later; her baby had a double otitis media when it was a week old and two weeks later a suppurative

mastoiditis; the nurse who attended the baby developed scarlatina.

From the above facts, one is forced to conclude that the mother became infected with scarlatina which precipitated labor (3 weeks before the normal term) and which was the cause of death. Her baby was probably infected in utero, for so far as I know it was not nursed.—J. B. MANN, *Standard Medical and Surgical Clinic, Peterboro, Ont.*

Dislocation of Pisiform Bone.—E. L. male, age 25, slipped on waxed floor and fell on left hand.

Region of wrist quite swollen and tender—motion very painful especially flexion and abduction. Pisiform bone quite movable and pressure on tendon of flexor carpi ulnaris very painful. The injury was put up in an anterior molded plaster splint and retained for three weeks. All soreness had disappeared but the bone can be snapped in and out quite readily and the power of flexion of the wrist is considerably less than normal. The case is interesting because it is unusual, there being very few such injuries reported in the literature—only nine according to a recent compilation in *Annals of Surgery*. A. J. GRANT.

Unusual Exanthem Resembling Measles in Infants.—Greenthal (*Amer. Jour. Dis. of Children*, January, 1922) describes an unusual exanthem in infants, preceded by high fever lasting three or four days. Eight cases were observed, the onset being sudden, with temperature ranging from 102° to 105° F., irritability, and refusal of food. Physical signs were absent, no cause for the temperature being discoverable before the appearance of the eruption. After three or four days the temperature fell suddenly, coincidently with the appearance of the eruption, which was chiefly macular, with some papules, and having the appearance of measles, but without any crescentic arrangement, and there were no Koplik's spots. The complaint did not seem to be contagious, only one member of each family being attacked. A leucopenia and a lymphocytosis of over 80 per cent. were important diagnostic signs during the pre-eruptive period. Measles is excluded by the absence of Koplik's spots, and by the fact that as soon as the eruption appears the temperature suddenly drops, leaving the patient apparently perfectly well. The eruption lasts for two or three days, being more pronounced on the neck and trunk than on the face and extremities, and it disappears spontaneously with very slight desquamation.—*Brit. Med. Jour.*, April 29th, 1922.

Artificial Pneumothorax.—Marais (*South African Med. Record*, January 28th, 1922) discusses the indications, scope, and results of thera-

peutic artificial pneumothorax from an experience of 38 cases during the past eight years. The ideal cases for treatment are those beyond the early stages in which the disease is confined to one lung, free from pleural adhesions, and therefore completely compressible. The usual method of treatment may be given a trial in early cases, but artificial pneumothorax should be considered when signs of ulcerative processes occur in the lung. In an otherwise uncontrolled toxæmia largely due to active processes in one lung, without evidence of active disease in the other, compression of the diseased organ yields quite dramatic results, the pyrexia disappearing, expectoration rapidly diminishing, and the appetite and general appearance improving. In severe or recurrent hæmoptysis the production of artificial pneumothorax acts rapidly, severe hæmorrhage having been checked instantly with permanently good results in at least three cases. Apyrexial cases, without chronic cavities and doing fairly well, should not be so treated unless a toxæmic recrudescence sets in: and the operation is contraindicated when cyanosis, dyspnoea, or long-standing emphysema and asthma complicate the tuberculosis. When lung collapse is prevented by one or two adhesions, section of them is possible, and when a whole lobe or two lobes are adherent a partial pneumothorax may be supplemented by rib section, but the presence of total adhesions necessitates a thorough thoracoplastic operation. Nitrogen is preferable to atmospheric air as minimizing the risk of infection through imperfect sterilization.—*Brit. Med. Jour.*, April 29th, 1922.

Editorial

IS THE GALL BLADDER A USELESS ORGAN

THE generally accepted practice of removing the gall bladder as the treatment of choice for conditions such as cholecystitis, cholelithiasis and chronic pancreatitis, has brought with it the need to determine the function, if any, of this organ and to estimate its value, when in a normal state, to the organism. To do this rationally we must know something of the origin and anatomy of the liver, gall bladder and bile ducts.

This gland and duct system is recognized early in embryonic life, as early as the 2.5 mm. embryo, as a ventral outgrowth from the lower end of the fore-gut. This outgrowth is at first a pouch from the alimentary canal, but soon becomes a solid mass of cells connected with the gut by a solid stalk. The beginning of the liver is soon formed from the main portion by the development of a branching outgrowth of tubules, while from the distal portion is differentiated what will later form the gall bladder and the cystic duct. The stalk becomes canalized to form the cystic and common ducts. By the time the embryo has reached the 29 mm. stage the gall bladder and cystic duct are formed; and the three layers of the wall may be recognized; *mucosa* from the original endodermal bud; *muscularis* from the mesodermal layer which has grown out over the ducts and bladder; *serosa*, a partial covering, from the primitive peritoneum.

In the human the gall bladder is a sac with a thin wall varying in thickness from $\frac{3}{4}$ mm when distended, to 2 mm. when contracted. It contains from one to 2 oz. of fluid, rarely more.

The mucosa is composed of simple columnar epithelium. It is thrown into folds which, by crossing form ridges and polygonal depressions. Under the epithelial layer, in the crypts formed by the folds, are found lymph follicles. The

fibromuscular layer is composed of smooth muscle fibres and inter-lacing fibrous connective tissue bundles. The muscular element is nowhere very abundant and under the mucosa is almost absent. In this area there is a very rich plexus of blood and lymphatic capillaries. The blood supply comes from the hepatic artery through the cystic, and the veins empty into the portal vein.

The lymphatic supply is abundant, both the subserosa and mucosa are rich in lymph capillaries, and the surface of the gall bladder is well supplied with lymphatic vessels, some of which anastomose with the lymphatics of the neighbouring area of the liver; but most carry the lymph from the deeper layers of the gall bladder wall. They collect into larger vessels and drain into glands about the head of the pancreas and along the common duct. The nerve supply is derived from the sympathetic and from the vagus. Bainbridge and Dale, Freese and others have shown that it possesses both pressor and dilator fibres. The normal result of stimulation of the sympathetic is probably relaxation. Both inhibitory and pressor fibres leave the cord from the sixth to twelfth dorsal segments, the inhibitory towards the upper level, the constrictors towards the lower, but the areas overlap.

It has been proved that bile is constantly being secreted by the liver but at an inconstant rate. It is discharged into the duodenum scarcely at all while the stomach is empty; but freely during stomach digestion, as soon as the acid stomach contents begin to enter the duodenum. The discharge is closely parallel in time to the discharge of the pancreatic juice. Bile is secreted by the liver at a pressure up to about 300 mm. of water; at this pressure in the ducts, bile ceases to enter the bile channels and is

diverted into lymphatics and the blood stream.

The rate of secretion lessens during resting and fasting periods. It increases during activity and during digestion. The quantity secreted varies considerably from day to day. The average in man is estimated at from 500-800 cc. according to some, up to 1200 cc. according to others. It has long been noted that the bile from the gall bladder is darker and more viscid than that from the ducts.

The natural assumption that the gall bladder acted as a reservoir for the storage of bile, and was capable of propelling it into the intestine during digestion when it was needed, is not as far wrong as might be supposed from reading some of the recent writers on the subject. It is true that the power of muscular contraction is not great; and that a tank with a capacity of 50 cc. cannot act as an ordinary reservoir for a 24 hour output of 800-1200 cc.; yet recent investigation shows that through its extraordinary power of absorbing fluid from the bile, bile salts can be stored up to a surprising extent, and that its contractile power under stimulation through the nervous system is real if not very strong.

Until recently there was little accurate knowledge of the power of contraction of the gall bladder or its action on the bile. Contractions of the gall bladder were observed and reported by Doyen as long ago as 1893. Freese in 1907 found that, under the conditions of his experiments, pressures of 216, 218, 214 mm of water could be demonstrated as the result of stimulation of the pressor nerves controlling the gall bladder musculature. He further demonstrated that both inhibitory and pressor fibres left the cord from the 6-12 dorsal segments.

It is then clearly established that such contractions occur, that they can be initiated by stimulation of the controlling nerves; and that through this stimulation of the nerves, pressures approaching the upper limit of pressure at which bile secretion can continue are developed in the gall bladder. We must also remember that this is also about the normal holding power of the sphincter of Oddi at

the outlet of the common duct. Nor should we forget in this connection Meltzer's belief in the reciprocating action of the nervous control of the sphincter of Oddi and the gall bladder muscle, by which it is brought about that when the sphincter of Oddi relaxes the gall bladder contracts.

It has been noted that some animals possess a gall bladder and some do not. Mann has shown that in animals which possess a gall bladder the sphincter opens at 100 mm of water, in those without at 30.

He and others have shown that the flow is intermittent in those with, but continuous in those without a gall bladder; and in animals from which the gall bladder has been removed the flow becomes continuous and the resistance of the sphincter low.

It is evident that as an ordinary reservoir, the gall bladder, with a capacity of 50 cc. for a daily production of 1,000 cc. of bile is quite inadequate, yet the secretion of bile is continuous and the output intermittent and confined largely to periods of stomach digestion.

The long recognized difference between gall bladder and duct bile led Rous and McMaster working in the Rockefeller Institute of Medical Research on a study of the concentrating activity of the gall bladder on the bile. Their results are published in a very interesting paper under that title in the *Journal of Experimental Medicine*, July 1921.

They first proved that bile from all parts of the liver was secreted at the same concentration during the same period of time. They then took advantage of the arrangement of bile ducts in the dog, which allows bile to be collected simultaneously from different parts of the liver. One portion was gathered in a rubber bag inside the peritoneum without any contact with gall bladder mucosa. The other passed into the gall bladder but was prevented from escape by ligation of the hepatic duct below the cystic.

The examination of the bile collected in these two reservoirs revealed the extraordinary fact that the gall bladder bile collected in 24 hours did not distend the

gall bladder more than normal and sometimes less, but that it was from 3.18 to 10.8 richer in bile pigment than the bile which had passed through the ducts without contact with the gall bladder. In other words the volume of bile had been reduced in some cases to $\frac{1}{10}$ of that secreted.

In a subsequent paper they prove that this concentrating action was present in the gall bladder alone and not in the bile ducts. The ducts on the contrary secrete into the bile a white fluid free from bile salts. Under conditions of obstruction of the ducts cut off from the gall bladder this "white bile" rapidly collects under a pressure sufficient to prevent the further entrance of bile into these blocked ducts; while in the obstructed ducts connected with the gall bladder a thick tarry bile gathers. Owing to the rapid withdrawal of water from the bile the pressure is maintained low enough to permit of the continued entrance of bile into these ducts.

It is seen therefore that the gall bladder has several demonstrated functions and is not a vestigial organ to be removed at sight. It acts as a distensible bag to regulate extremes of pressure during rapid secretion from the liver during the periods of rest and fasting

when bile is known not normally to enter the duodenum.

The capacity of the reservoir is made large enough to serve the need not by its size or ability to dilate; but by its power to reduce the volume of the bile, to store the bile salts and bile pigments at the expense of the watery part. In this way it can retain nearly all the liver output during the periods of rest and fasting. It has propulsive power sufficient to deliver bile to the duodenum when needed. This is an essential factor if the concentrating power is to have any meaning. Other uses it may also have, such as the addition of mucous as an element of protection to the pancreas in the event of bile being forced into its ducts.

That the organism can thrive seemingly uninjured after the removal of an organ is no proof of the uselessness of that organ, though it does permit of its removal when diseased. Clinical experience has shown that the gall bladder may be removed with safety to the health of the individual. A knowledge of its physiological usefulness, however, should temper our enthusiasm and steady our judgment as to when it should be removed and when preserved.

F. A. C. SCRIMGER

ON THE DIAGNOSIS OF TUBERCULOSIS IN CHILDHOOD

IN this number of the Journal appears a slightly abstracted report* on the X-Ray and clinical findings in normal chests of children from six to ten years of age prepared by a committee of experts under the direction of the American National Tuberculosis Association. This Association considered that such a report would be of great assistance in increasing the practical knowledge of physicians dealing with tuberculosis in children. We strongly commend it to the attention of every physician. In the June number of the *American Journal of Diseases of Children* Happ and Casparis of Baltimore

*This report will appear in the August number.

present an interesting paper on the value of the intracutaneous tuberculin test in extensive tuberculosis. It is a general belief that skin hypersensitiveness to tuberculin is frequently lost in the presence of an overwhelming tuberculous infection such as general miliary tuberculosis, and tuberculous meningitis. Since the fact that skin hypersensitiveness to tuberculin implies that there is a focus of tuberculosis infection somewhere in the body, if the reaction fails in favour of tuberculous infection in which diagnosis is most difficult then the test loses much of its value. The Pirquet skin test is the one most frequently employed, and from

the statistics published by reliable investigators it appears that negative reactions are obtained in at least 40 per cent of generalized tuberculosis. Better results are obtained from the subcutaneous injection method, and by the Mantoux method which allows the use of accurately measured amounts of tuberculin. This latter test will be found to yield results which can be depended upon. The amount advisable to use for the first test depends on the condition of the patient. Krause and Willis found that a general reaction of an anaphylactic character can be produced in non-tuberculous pigs after repeated injections, but no local tissue reaction was obtained. Hamberger was never able to obtain a local reaction from tuberculin in the non-tuberculous human being. On the other hand great care must be exercised when tuberculosis is suspected for not only may very severe local inflammation set in, but a general reaction may set in with marked activation of the tuberculous condition at the focus or foci of infection.

For routine tests with children the authors commenced with 0.01 mg. at the first injection. Some patients, they say, will react to 0.001 mg., but a violent reaction following the injection of 0.01 mg. is most uncommon. This amount therefore was usually given as a routine measure for the initial injection when the

forms of tuberculosis, which develop in the patient greater skin sensitiveness, were suspected such as tuberculous conjunctivitis or keratitis and superficial glandular, osseous, early pulmonary or renal infections. The next higher concentrations 0.1 mg. was employed as an initial injection only when a depression of skin sensitiveness might be assumed, as in general tuberculosis and tuberculous meningitis. Only occasionally in a patient with far advanced tuberculosis and extreme emaciation was more than 1 mg. tuberculin ever required to excite a reaction. The conclusions arrived at by the writers were the following. In miliary tuberculosis and tuberculous meningitis in infants and children the Pirquet cutaneous test was positive in over 50 per cent of their cases. A failure to react to the Pirquet test in miliary tuberculosis and tuberculous meningitis does not mean a loss, but only a depression of skin sensitiveness to tuberculin. The tuberculin test is quantitative; the Pirquet cutaneous test is equivalent to about 0.01 mg. tuberculin given intracutaneously. The intracutaneous test is more sensitive and affords a method of accurately measuring the amount of tuberculin given. If a high enough concentration of tuberculin is given intracutaneously, a positive reaction will be obtained in practically all cases of tuberculosis.

PASTEUR CENTENARY CELEBRATION

PASTEUR was born in May, 1823. Next year his centenary is to be celebrated at Strasbourg. The French Government and the scientific world of France are working actively to make the celebration a momentous one. National co-operating committees have been formed in many of the countries invited to participate.

In May, 1923, there will be at Strasbourg eminent men from all parts of the world. They will gather there in homage to the memory of a man whose genius

made possible the many industries dependent upon accurate control of fermentation processes. With them will be joined those whose function it is to prevent and heal disease. Side by side, vintners, brewers, veterinarians and physicians will bear witness to achievements which remove much guess-work and add much knowledge to the practice of their occupations.

The ceremonies planned include the inauguration of a monument and the establishment of a department which will

be devoted to the prosecution of Pasteurian studies.

Subscription lists have been opened in all the Universities of the world. Information concerning subscriptions and at-

tendance at Strasbourg may be obtained from the Universities or from M. Th. Hering, 6, rue des Veaux, Strasbourg, the general secretary and treasurer of the French Committee.
J. L. T.

Therapeutical and Pharmaceutical Items

PURIFICO

SEVERAL requests have come in for a report on this patent medicine, which is distributed by C. W. Diffin, manufacturing chemist of Buffalo, N. Y., and Bridgeburg, Ont., the successors to the Purifico Co., and E. E. Burnside, M.D. According to their booklet, Eleanor E. Burnside graduated from the New England Female Medical College class of 1867. The *Purifico News* definitely states that it cures Cancer, also that it cures Tumors, Goitre and all blood diseases. Both *Purifico News* and the book of *Evidence* contain letters from patients cured by taking these remedies. Letters written to two women whose letters are published in the *News* have brought answers. The letters are evidently not written by educated people. One of them has bought twenty bottles. The price is \$5.00 per bottle.

There are three preparations, No. 1, 2 and 3. The bottles hold about 16 oz. They are dark, bitter, aromatic mixtures with a flocculent precipitate. They are described by *Nostrums and Quackery* (published by the A. M. A.), Vol. 2, 1921, p. 590, as follows:—

"Dr. E. E. Burnside's *Purifico*—Shipped by Charles W. and Pearl B. Diffin, co-partners, who traded as the Purifico Co., Buffalo. Samples of "Purifico Nos. 1, 2 and 3" were analyzed. "No. 2" was found to contain 10% of alcohol, with sugar, small amounts of glycerin, potassium iodid, cinchona alkaloids, piperin and emodin (probably senna). "No. 2" was found to contain 9% of alcohol, sugars, small amounts of glycerin, potassium iodid, cinchona alkaloids and piperin. "No. 3" was found to contain 14% of alcohol, sugars, valerian, piperin and tannic acid. All three products were falsely and fraudulently advertised. (Notice of Judgment No. 5896, issued May 14, 1918)"

The analysis of "No. 1" has been in part

checked. It was found to contain alcohol, sugar, probably glycerin, potassium iodide. It seemed to contain valerian. The amount of iodide was small. It is obvious that the claims made are grossly exaggerated.

It is to be regretted that our laws are not such as to debar the sale of such preparations.

—V. E. HENDERSON, *Department Pharmacy, University of Toronto.*

STANDARDIZATION OF DRUGS

IN the issue of April, 1922, p. 256, there was an outline of a plan by which important drugs, such as arsphenamine products, pituitary and digitalis, could be obtained of uniform composition for use by the physician. This plan entailed the department of health of the Dominion Government, undertaking the necessary physiological assays of such drugs and formulating regulations and standards for their quality.

On Wednesday, May 18th, a deputation from the Canadian Medical Association, consisting of Drs. C. F. Martin, W. G. Reilly, F. J. Farley, V. E. Henderson, J. Fenton Argue and T. C. Routley, waited upon the honourable Dr. Beland, minister of health, Ottawa, to urge upon the Dominion government, through the honourable minister, the adoption of the plan referred to above.

The deputation was introduced by Mr. Manley German, M.P. The minister of health gave the deputation a very sympathetic hearing. He, of course, realized that for the arsphenamine compounds there was at present no accurate control such as exists in the United States, where the department of health makes an assay of every batch produced by any manufacturer. It was pointed out that, under the "Food and Drugs Act," paragraph 14 (1), regulations could readily be introduced for its standardization. Para-

graph 14 (1) says "The Governor-in-Council shall have the power to make regulations (a) prescribing standards of quality for, and fixing the limits of variabilities permissible in any article of food or drug, the standard of which is not prescribed by this act."

The minister also realized and pointed out to the deputation that he had experienced the unreliability of the ordinary tinctures of digitalis and had been forced to rely on an imported product if he wished to obtain constant therapeutic effects. It was pointed out that the deputation did not want to suggest that the manufacture of tinctures according to the B. P. standards be interfered with but that, if a tincture was to be described as "Standardized," it should be of definite physiological strength.

The deputation further pointed out that it would be a great step forward were the government laboratories to undertake for manufacturers these assays as the American government does for arsphenamine and would immediately protect the physician and the public.

Were physiological standards prescribed by regulation and were the department of health simply charged with sampling the market from time to time and with, as is the case with chemical standards for such drugs as liquor arsenicalis, ascertaining whether the standards were adhered to, it would be long ere the public and profession could be assured that the accuracy and strength

of the preparations were such as they purported to be, while under the plan proposed the assurance would be immediate, as we have confidence that the Canadian manufacturer will not deliberately falsify his products.

The minister suggested that the deputation should have a talk with the deputy minister, Dr. Amyot. This the deputation did and were delighted to learn that the estimates for the department passed by the House this year included the salary for an assistant whose training would enable him to undertake this work and for the salary of an attendant. These are, of course, the heavy annual costs in carrying out this work. The other expenditures will hardly amount to more than two or three thousand dollars annually, while the capital cost of equipping a laboratory will hardly exceed five thousand.

The deputy minister assured the deputation that he would urge upon the minister the framing of the necessary regulations and the undertaking of the duty of the maintenance of the standards as soon as it was possible. He asked the profession in turn to give him honest and earnest support in his efforts to improve conditions in this matter as in other matters of health.

It may be further reported that several of the most important manufacturers of these bodies in Canada strongly approve of the steps we have taken and are ready to cooperate with us in our endeavours.—V. E. HENDERSON.

Bacterial Flora of Infants' Throats.—

Bloomfield (*Bull. Johns Hopkins Hosp.*, February, 1922) has made a study of the micro-organisms present in the throats of infants by taking swabs from the throats soon after birth and at frequent intervals subsequently. He finds that cultures made within twelve hours of birth are almost always sterile, but that organisms begin to appear soon after nursing commences, and thereafter the throats of infants support a profuse bacterial growth. But the bacterial flora is relatively simple compared with that of adults; consisting of (1) a group of organisms of the staphylococcus group, introduced during the process of nursing, and corresponding to the organisms recovered from the skin of the nursing mother; (2) non-hæmolytic streptococci, which begin to appear within twenty-four hours and are present in

great numbers—it is presumed that these are derived from the throats of attendants; (3) very occasionally a few diphtheroids and Gram-negative cocci are recovered. The author points out that the bacterial flora of infants differs markedly from that of adults, from whose throats non-hæmolytic streptococci, Gram-negative cocci, and diphtheroids are constantly recovered, whilst influenza bacilli, pneumococci, and hæmolytic streptococci are relatively frequent in adults. The latter were never found in the throats of infants. Special conditions may be necessary for the colonization of these more pathogenic organisms, whereas the simple, non-hæmolytic streptococcus seems to have adapted itself completely to growth on the mucous membrane of the upper respiratory passages.—*Brit. Med. Jour.*, April 22nd, 1922.

Abstracts from Current Literature

MEDICINE

Impending and Real Gangrene Associated with Diabetes: Correlation of Medical and Surgical Effort. Bernheim, B. M., *Am. Jour. Med. Sci.*, May, 1922.

The author draws attention, with illustrative cases, to the importance of combined medical and surgical consideration of patients with diabetes in whom gangrene threatens or already exists. He emphasizes the fact that in individuals suffering from diabetes, there is usually an associated generalized arteriosclerosis which, together with the recognized lowered resistance of the tissues to infection, may be said to prepare the field for those circulatory disturbances of the extremities that eventuate in gangrene. Of the two conditions, the lowered tissue resistance to infection is of primary importance. The patient's chances of surviving operation appear to be increased in proportion as his underlying diabetic malady is brought under control. The cases illustrate what may be accomplished by closely allied surgical and medical forces. The author, who is a surgeon, deprecates the fact that many surgeons endeavour to treat these surgical complications without respect to the medical conditions, thereby losing the opportunity for constructive measures. Whereas in gangrene from other causes, it may suffice to treat the local condition alone by re-establishing the circulatory balance in a limb of precarious circulation, by rest, baths and gentle massage, the case is entirely different in diabetes. Most of all the author refers to those cases of impending gangrene which have not progressed to the stage of actual tissue death.

The crux of the situation must, therefore, lie in the ability of the tissue to survive with a greatly diminished blood nourishment, and it is this ability which seems to be influenced by the diabetes. Careful medical treatment, then, is carried on prior to and parallel with the surgical measures, and the results have been most happy.

—C. F. MARTIN.

The Prevention of Simple Goitre in Man. Kimball, O. P., *Am. J. Med. Sci.*, May, 1922.

The author enters fully into the nature of endemic goitre, and has gathered most interesting

statistics to show how, as a public State measure, simple goitre may be prevented, and the direct application of this theory might in a few generations close the chapters on endemic goitre and cretinism in every civilized country in the world.

In the course of his article, he explains the investigations which have been made to show the relation of iodine to the thyroid gland, quoting from the work of many authors, chiefly that of Marine and Lenhart, as well as the later work of Kendall. Iodine is a constituent of the normal thyroid of all animals which possess the ductless thyroid. Experiments show that the store of iodine consists normally of inactive iodine for the most part in the cells, and of active iodine for the most part in the "colloid" or thyro globulin. Variations in the iodine store have been shown to have an intimate relation with the histology of the gland. Thus, in all species of animals with the ductless thyroid, the iodine store is decreased in the hyperplasias, and this decrease is proportionate to the degree of hyperplasia. Just so soon as the store of iodine falls below 0.1 per cent., active hypertrophic and hyperplastic changes in the thyroid begin. In other words, no functional hyperplasia, and, therefore, no goitre, can develop if the iodine store is maintained above 0.1 per cent. It may undoubtedly be rapidly and markedly increased by the administration of exceedingly small quantities of iodine in any known form and through a great variety of means, such as inhalation, enteral and parenteral administration, cutaneous application, etc., and as a result, marked histologic changes are brought about in hyperplastic glands, namely, the arrest of the hypertrophy and the involution or return of the thyroid cells to their resting form.

One of the first practical applications of the principle of prevention of goitre and myxoedema accidentally followed the discovery of salt in Michigan, and its more extensive use (as crude salt) in the sheep industry of this State at a time when the industry was being crippled by endemic goitre. This crude salt was afterwards found to be rich in iodine. From this, and also from the application of the principle to prevent goitre in brook-trout, the investigators concluded that goitre could be prevented by adding a very small amount of iodine to the food or water, or by changing the diet and remedying the over-crowding of the fish.

At the Lakeside Hospital in Cleveland, similar experimental work on man was done for a period of ten years, and the results of the investigations have shown that the prevention of goitre was no longer an experiment but an accomplished fact.

The experiments in Cleveland were carried out in the public schools among girls, in whom goitre of the adolescent type is much more common than in boys. In April, 1917, an examination for thyroid enlargement was made of all the girls from the fifth to the twelfth grades inclusive and careful statistics were kept.

In 1688 cases or 43%, the thyroids were normal.

In 1931 cases, or 49%, slightly enlarged thyroids were found.

In 246 cases, or 6%, moderately enlarged thyroids were present.

In 7 cases, or 2%, the thyroids were markedly enlarged.

Adenomas were found in the remainder.

Prophylactic treatment was administered to more than 1,000 girls who had elected to take it. In not a single instance was a normal thyroid increased in those taking the iodine. In those not taking the iodine, 26% of those marked "normal" at the first examination showed definite enlargement. In the following year, a third examination of over 4,000 girls was made, while in 1919, over five thousand individual examinations were recorded, making a total for the entire period of 9,967 different girls, upon whom reports were given.

The prophylactic treatment as carried out consisted in the administration of 2 gm. of Sodium Iodide given in daily doses of 0.2 gm. every ten consecutive school days, repeated each spring and autumn. Statistical observations on this large number of girls manifested marked differences, both in the prevention of enlargement—prophylactic effect—and in the decrease in the size of existing enlargements—therapeutic effect. The tabulated results are very remarkable. Of the cases classed as "slight enlargements" and not taking the prescribed iodine, 13% underwent further enlargement; while among those taking the treatment, only 0.3% underwent any further increase in size. Of 2,000 cases not taking iodine, 500 showed thyroid enlargement. Of the group with small goitres, taking iodine, 57% returned to normal.

In the practical application of the preventive treatment, one must keep in mind the three periods when simple goitre enlargement most commonly occur, namely:—

(a) The foetal period.

(b) Adolescence.

(c) Pregnancy.

The prevention of goitre in classes (a) and (c) is as simple as the prevention of goitre which develops during adolescence, and should be left to the individual members of the medical profession supplemented by the education of the public. The prevention of goitre in the adolescent period, on the other hand, should be a public health measure organized in the schools and in industrial medicine. The method and form of administration is a matter of little importance, for the thyroid gland will take up the iodine from the most stable compound.

The author adds an interesting note that in 1918, similar work was carried out in Switzerland by Klinger, whose published results of 16 months' treatment are equally remarkable, and all the more striking as the author worked in some schools in which the children were 100% goitrous. Here, too, the same plan for prevention has been recommended, for it has been amply demonstrated that if carried out as a public health measure, the prevention of endemic goitre can be successful in this—the most noted endemic goitre nation in the world.

C. F. MARTIN.

Immediate Recovery from Early Diabetes Insipidus after Lumbar Puncture.

Tucker, J.: *Am. J. Med. Sci.*, May, 1922.

Few instances of complete recovery from diabetes insipidus after lumbar puncture have been recorded. As a rule, the polyuria and polydipsia which so frequently accompany the disturbances of the pituitary gland, are part of a clinical picture, insidious in onset and attended by other metabolic changes due to glandular dysfunction. Sometimes, however, this dysfunction may be due to some transient oedema or acute inflammatory process of a temporary nature, and under such conditions improvement by spinal puncture could be readily conceived.

In the author's case, there was a sudden onset of the diabetes insipidus without any preceding illness. There was some involvement of the second, fifth and eighth cranial nerves accompanying the discomfort behind the glabella, increased thirst and urine output, with marked sweating of the body. Within twenty-four hours after lumbar puncture, the thirst was relieved, the urinary output was reduced to normal and the sweating ceased. Five-and-a-half months afterwards, the findings were negative, with the exception of a

high sugar tolerance. The author concludes that the case was one of incipient diabetes, due to some cause obstructing the normal flow of secretion without destroying the pituitary gland; the obstruction might be of the nature of a transient oedema, or an infection with resultant plastic exudate, or through some other extrapituitary condition such as increased intracranial pressure from any cause. The withdrawal of the spinal fluid tends to relieve this pressure and remove the obstruction.

It would seem from this experience that in any case of diabetes insipidus, the patient should be given the advantage of early relief by this means.

C. F. MARTIN.

On the Treatment of Gonorrhoeal Rheumatism. Ross, A. O.: *Edinburgh M. J.*, May, 1922.

The author discusses the use of electrargol. He draws attention to the well-known fact that infection of the joints is possible in the course of an acute urethritis at any time after extension of the disease to the posterior urethra. This usually occurs in the third or fourth week of the disease, but sometimes more rapidly, especially in alcoholic patients. He discusses the various methods of treatment of gonorrhoeal infection, both locally and systemically, and finds satisfactory results in thirty cases of arthritis in the use of a combined chemical and rational vaccine treatment; the chemical substance used was colloidal silver in the form of "electrargol" and mixed vaccine containing 500 million gonococci per c.cm., together with staphylococci, streptococci and *B. coli*.

Isotonic electrargol is a dark-brown, almost opaque fluid containing silver in colloidal solution. The dose recommended is from 10-20 c.c. intravenously. The patient is put to bed for the treatment, and given 15 grs. of ac. acetosalicylic immediately before the injection and again four hours later. A reaction follows within two hours of the injection, after six hours, the patient, who may have had a stormy time at first, becomes free of all ache and pain on movement, and the general condition is much improved. On the following day there may be evidences of what seems like a relapse, but after the second injection forty-eight hours later, the improvement is more manifest. The author recommends the further use of injections at 2-daily intervals, combined, of course, with local treatment of the prostate, and

use of vaccines. He prefers using 5-10 c.c. rather than the larger dose, and finds that under such conditions, the evil effects ascribed to the drug are practically nil.

C. F. MARTIN.

Rheumatoid Arthritis: Recovery After Being Bedridden for Four and a Half Years. Hurst, A. F., and Osman, A.: *Proc. Royal Society of Medicine*, May, 1922.

The author draws attention to the importance of combining orthopaedic treatment of chronic arthritis with psychotherapy. The case recorded was that of a man with marked deformity of hands and feet, causing him to be bedridden for four-and-a-half years. There was extreme deviation of both hands, and the fingers were fixed in a flexed position; the knees were drawn up and firmly fixed, with great wasting and shortening of the ham-strings. Tenotomy of the ham-strings was performed and the legs fixed in plaster. The fingers and toes were subjected to a gradual extension by means of metal splints fitted with rubber extension bands. The patient, having been unable to move his hands and feet on account of the pain during the active stage of the disease, had lost all power in his muscles. This functional paralysis was rapidly overcome by persuasion and re-education. Eight months later he was able to walk about without pain or difficulty, and has since returned to work. Though there is obvious deformity of the hands still, nevertheless, he can move his fingers well and is able to write; he can walk long distances without undue fatigue, and his gait is quite normal.

C. F. MARTIN.

Praesystolic Murmurs in Rapid Hearts Simulating Murmurs of Mitral Stenosis.

Jones, E. E., and Jennings, A. F., *J. A. M. A.* April, 1st, 1922.

The authors report four cases exhibiting in life praesystolic bruits with and without praesystolic thrills in whom at autopsy no narrowing of the mitral orifice could be detected.

Case I—Definite short praesystolic murmur; no thrill; no enlargement; normal blood pressure; pulse rate 85-94. Subjectively, there were pains, dizziness, and dyspnoea on exertion. Subsequently developed septicaemia as complication of suppurative pleurisy. Autopsy revealed a heart in every way normal.

Case II—A soldier with history of pulmonary tuberculosis. Examination discovered short praesystolic murmur and accentuated second sound in

the pulmonic area. Pulse rate was 112 to 120. No thrill and no evidence of enlargement. Subsequently death took place suddenly in the course of a sero-fibrinous pleurisy. Autopsy showed a normal heart in every way.

Case III—Patient suffering from active pulmonary tuberculosis. Praesystolic bruit rolling in character, and blowing systolic at apex. Accentuated second sound in the pulmonary area. Praesystolic thrill at the apex. Left border 10.5 c.m. from mid-sternal line. Death subsequently from miliary tuberculosis. Post-mortem the heart was of normal size; there was no narrowing of the mitral orifice.

Case IV—Young woman suffering from heart failure—dyspnoea, praecordial pain, oedema, albuminuria of four weeks duration. There were rumbling praesystolic murmur, praesystolic thrill, and a systolic bruit at the apex. Left border 17.5 cms from mid-sternal line. Blood pressure 180-122. Pulse 122. She improved during ten days, oedema and dyspnoea becoming less and the praesystolic murmur disappearing. Death occurred suddenly in bed. At autopsy there was no narrowing of the mitral ring. There were thickening of left ventricle, sclerosis of coronaries and the aorta, and a healed infarct near the apex; also evidence of healed fibrinous pericarditis without adhesions.

The authors mention recent articles in the literature which emphasize frequency of praesystolic apical bruits in patients without stenosis of the mitral orifice, notably in aortic insufficiency (Flint Murmur), in adherent pericardium, and in accelerated hearts which are structurally perfect.

The Prognosis of Involution Melancholia,
Hoch and MacCurdy. *Am. J. Psych.*
Vol. 1., No. 3, Jan. 1922.

Contrary to the generally accepted idea concerning the prognostic hopelessness of involution melancholia, the authors point out that a fair proportion of these sufferers recover. After reviewing the teaching of Kraepelin and Dreyfus, they classify involution melancholia as distinct from the manic-depressive group. Nosologically and prognostically, they divide the symptoms into two groupings—the benign, which tends toward recovery in one to four years and the chronic-malignant which ends in death without improvement.

The latter group is characterized by (1) a ridiculous hypochondria. (2) marked peevish-

ness with autoeroticism and (3) loss of affective response.

In summary, the authors state, "The result in a series of 67 patients, in whom the final outcome was determined in all but one case, cause us to conclude that patients with involution melancholia, recover unless they show as dominant symptoms: marked insufficiency of affect, peevish or auto-erotic behaviour, or ridiculous hypochondriacal delusions which usually are concerned with the alimentary tract. These prognostically bad symptoms may be present for a short phase of the psychosis in women at the menopause without their prejudicing the outlook for recovery. All patients who eventually recover show some improvement within 4 years after the onset. The others run a chronic course or die unimproved."

F. H. MACKAY.

The Value of Phenobarbital (Luminal) in the treatment of Epilepsy. Cheinisse, L., *Presse Med.* (Jan. 14.), 1922.

The author cites his experience in the use of luminal in the treatment of epilepsy, which, on the whole, is critical of the too optimistic attitude surrounding its use.

In many cases of grand mal, there was no appreciable effect while in petit mal the effect was not too encouraging.

Its sudden withdrawal has resulted in status epilepticus while intellectual torpor and, in some cases, delirium, have followed its use.

The torpor and lassitude may be beneficially influenced by combining with the luminal, small doses of belladonna, as suggested by M. Ducoste.

—F. H. MACKAY.

SURGERY

On Delayed Union and Non-union of Fractures. Nutter, J. Appleton, J. Bone and Joint Surg., Jan., 1922.

Delayed union means a retardation of the process of normal consolidation of a fracture, and may exist up to six to twelve months following the injury. Non-union means that consolidation is absent and is no longer to be hoped for, save by operative means. Delayed union in general calls for non-operative treatment with good hope of success, while non-union implies operation of necessity. Delayed union occurs in about one and one-half per cent of all fractures, while non-union occurs in about two to three per cent.

Causes of Delayed and Non-union.—Al-

most every known malady has been considered a constitutional cause, but the importance of them all, with the probable exception of syphilis, is largely academic. Local conditions are on the other hand of the highest importance. (1) Non-apposition of the fractured bone ends due to loss of substance or to over-riding. (2) Interposition of soft parts between the fragments. (3) Faulty immobilization, including immobilization for too short a period. Too much handling by an impatient surgeon. (4) Sepsis, generally acting through extensive necrosis and bone abscess. (Note, per contra, that mild sepsis has been found to promote callus formation.) (5) Bone tumours, as sarcoma and metastatic carcinoma, also bone disease of all kinds at the seat of fracture, syphilis, tuberculosis, bone cysts, acute rickets, etc. (6) Defective blood supply by too tight bandaging or splinting, and by rupture of the nutrient artery. (7) In some cases no cause whatever can be found, as in the refusal to unite of some cases of osteotomy for bow-legs. (8) Metallic plates, nails, and screws at times cause delayed and even non-union. By the irritation of their presence they delay callus formation.

Diagnosis.—Delayed union is to be diagnosed when, following a fracture, consolidation is found to be weak after a period which usually suffices to effect union. Non-union ordinarily is to be diagnosed only after six to twelve months of treatment directed towards promoting consolidation of the fracture. A very common error is to diagnose as non-union, and therefore treat by operation, a condition where in reality union is only delayed and where, with patience, consolidation will be effected by conservative measures alone.

Treatment.—Broadly, that of delayed union is conservative, while that of non-union is operative.

Treatment of Delayed Union.—Any constitutional disease, as syphilis, is to be treated vigorously. Avoid stirring the bone-ends about to see how the case is doing. Get good apposition, good immobilization and good alignment and the great majority of cases will unite. Do not put recently healed fractures to work too soon, especially in Pott's fracture and femurs. Be sure the splints are not too tightly bandaged. If, after three months, union in a femur, for instance, is weak, use Thomas's percussion and damming method. Break down the soft callus, turn the bone ends towards the skin and beat them with a padded mallet, then apply a rubber bandage above and below the fracture, inducing venous congestion for

from half an hour to several hours daily. Baking and massage, with hydrotherapy are stimulating. Electricity and the injection of irritants such as iodine, zinc chloride, etc., would seem of little service. Drilling down upon the bone ends is an old form of local irritation now being revived with success. In leg cases ambulatory splints are of much service, whether their action is by promoting the blood supply or by rubbing the bone ends together.

Treatment of Non-union in Aseptic Cases.—Where soft tissues are interposed these must be removed. Where there is gross loss of substance the gap must be bridged or length of limb sacrificed. The key-note of operation should be simplicity. Get bleeding bone-ends in apposition and keep them together by an absorbable suture, if possible. Immobilize with the greatest care. The sclerosed bone-ends will have to be freshened and the bones drilled longitudinally to free the imprisoned osteoblasts. In the larger bones where there is considerable loss of substance the method of choice is the Albee bone graft, which must extend into healthy bone both above and below. Sir Robert Jones avoids the use of plates and metallic sutures. Sir Arbuthnot Lane uses them. Non-union of fractures of the femoral neck is the rule rather than the exception. Pegging the femoral neck together with refreshing the bone ends through an anterior incision seems the favorite procedure, and one that has met with considerable success. A bone peg is to be preferred to a metallic spike. In the case of the smaller bones, notably the radius and ulna bone grafting has had many failures owing to an over-estimation of the power of callus formation in small bones. A small medullary graft of rib or iliac crest does well here, sprung into place. Tapering bone ends are to be split and the graft engaged in their cleft extremities.

Sepsis in Delayed and Non-union.—Sepsis is a cause of delayed but not commonly of non-union. Callus formation, after the first flare-up, is abundant. Three to five months after the fracture septic tracts should be excised, sequestra got rid of and the bone-ends refreshed, even in the presence of mild sepsis. Metallic sutures and plates should not be used, as they act as foreign bodies. Before the war, union of septic bone-ends was considered hopeless, we now confidently expect it. Bone grafting should not be attempted in the presence of sepsis, or after it, until it is certain that no latent infection exists.

J. A. NUTTER.

News Items

NOVA SCOTIA

REPORT OF HALIFAX HEALTH COMMISSION

THE clinical activities of the Health Centre and the field activities of the Massachusetts-Halifax Health Commission as summarised by the Chief Nurse for May show a total of seven hundred and thirty-four medical and nursing consultations.

Two hundred and nineteen admissions were registered among those seeking medical advice and treatment and one hundred and eighty of those previously attending clinical services were discharged from the clinic rolls, the majority of them being continued in the home teaching services of the public health nurses.

Public health nurses from the Health Centres of Halifax and Dartmouth during May made a total of three thousand, two hundred and six visits in a total of twenty-three hundred and fifty-six homes.

The total number of babies under two years of age receiving medical and nursing guidance total eight hundred and seventy.

The Laboratory staff studied thirty-three samples of the public water supply; forty-six specimens of sputum; thirteen of urine; forty nine samples of blood to determine the Wassermann reaction; and one sample of milk, and performed other routine work.

The Scotia Pure Milk Company and the Farmer's Dairy Company each are supplying milk to necessitous people free of cost, on written recommendation of the nursing staff.

Two public addresses have been given during the month by nurses connected with the staff. One by Miss Ross on the 1st at the May Fair for the Coloured Children's Home; and one by Miss Fenton on the 19th to the Girl Guides and Brownies of Trinity Church.

THE clinical activities of the Health Centres and the field activities of the Massachusetts-Halifax Health Commission as summarised by the chief nurse for the month of April show a total of 671 medical and nursing consultations. Of these, 124 were in the child welfare and prenatal service; 80 in the preschool age dental service; 157 in the nutrition classes; 5 in the posture clinic; 7 in the eye clinic at Dartmouth, 52 in the ear, nose and throat services; 99 in the tuberculosis clinic services; ten in the skin clinic; 18 in the pre-school nutrition clinic; and 119 in the venereal disease clinic conducted by the Provincial Department of Health. One hundred and thirty admissions were registered among those seeking medical advice and treatment; ninety-one of those previously attending clinical services were discharged from the clinic rolls during the month, the majority of them being continued in the home teaching services of the public health nurses. At the end of the month there remained on the rolls a total of 2,067 patients who were receiving medical and nursing supervision from the Health Centres.

In summarizing the field work this report sets forth that public health nurses from the Health Centres of Halifax and Dartmouth during April made a total of 2,160 visits in a total of 1,433 homes. In addition, the visiting house-keeper made fifty-five instructional visits into 28 families where nutrition problems were paramount. The total number of babies under two years of age receiving medical and nursing guidance total 864. The medical

examiner in tuberculosis studied nine cases of tuberculosis in consultation with family doctors; in addition, conducted a total of fourteen clinics, making forty-nine complete chest examinations in connection with these clinics; made eight detailed examinations at the Tuberculosis Hospital, performed five operations in the Hospital for Pneumothorax; and at the request of the Anti-Tuberculosis League of St. John, N. B., assisted in a case finding campaign where 120 complete examinations were made from the 4th to the 7th. The Preschool Dental Clinic reported a total of 77 consultations, at which 498 operations were performed, and 699 treatments given, and a total of 101 extractions under gas-anaesthesia and four without. No deaths occurred during April of any babies under two years of age under the supervision of the public health nurses. Six public addresses have been given during the month by nurses connected with staff. During April St. John Ambulance resumed teaching of classes at the Health Centre both in First Aid and Home Nursing: these classes will be conducted weekly.

At the annual meeting of the Colchester-Hants Medical Society after the routine business was finished the following papers were presented:—"Clinical and Laboratory Co-relation, including some recent Developments," by Dr. J. G. McDougall, Halifax, N. S.; "Ethics of Organization," by Dr. S. L. Walker, Halifax, N. S.; "Life Insurance Examination Fees," by Dr. J. W. T. Patton, Truro, N. S.; "Blood Transfusion," by Dr. D. S. McCurdy, Truro, N. S.; Case Reports, by Dr. J. W. Reid, Windsor, N. S., and Dr. E. E. Bissett, Windsor, N. S.

The officers elected for 1922-23 were as follows:—president, Dr. F. R. Shankel, Hantsport, N. S.; vice-president, Dr. D. S. McCurdy, Truro, N. S.; secretary-treasurer, Dr. H. V. Kent; executive, Drs. R. O. Shatford, F. F. Eaton and C. H. Morris.

At the annual meeting of the Valley Medical Society held at Wolfville on Monday, Digby was selected as the place of meeting next year. This society is comprised of members of the medical profession in the counties of Kings, Annapolis and Digby and meets semi-annually, the summer meeting being the annual meeting. On Monday the election of Officers resulted as follows: President—Dr. Read, Digby, N. S.; Vice-President—for Digby County—Dr. Campbell, Bear River, N. S.; Vice-President for Annapolis, Dr. Phinney, Lawrencetown; Vice-President for Kings—Dr. Burns, Kentville, N. S.; Secretary-Treasurer—Dr. Sponagle, Middleton, N. S.; Middleton was selected as the place of the mid-winter meeting. The programme Monday consisted of:—

Addresses, Dr. J. G. McDougall: Subject "Applied Psychology in Medicine and Surgery."

Paper, Dr. C. E. A. DeWitt. Subject: "Preventive Medicine as prescribed at Acadia Institutions."

"The Ethics of Organization", Dr. S. L. Walker, Associate Secretary, Nova Scotia Medical Society.

From 5 to 7 o'clock the members and their wives were guests of the Wolfville medical men and their wives at a garden party on the grounds of the Westwood Hospital.

ONTARIO

Dr. J. GIBB WISHART has resigned the Chair of Oto-Laryngology in the University of Toronto medical faculty, a position which he has held for 37 years. He is succeeded by Doctor Perry Goldsmith.

Dr. B. P. WATSON, having accepted the Chair of Gynaecology and Obstetrics at the University of Edinburgh, resigns from the Faculty of Medicine in Toronto. He will be succeeded by Dr. W. B. Hendry. Dr. W. H. F. Addison has been appointed Associate Professor of Anatomy in the University of Toronto Medical Faculty. Dr. R. D. Defries has been appointed Associate professor of hygiene in the University of Toronto and is acting as head of the department during the absence of Professor Fitzgerald in California.

A Canadian society of Paediatrics was organized at a meeting in Toronto during the month of June. Dr. Blackader of Montreal was elected as the first president of the organization. Dr. Allan Brown, of Toronto, and Dr. Morgan, of Toronto, were elected vice president and secretary-treasurer respectively. Dr. H. P. Wright, of Montreal, Dr. Canfield, of Toronto, and Dr. G. Campbell, of Ottawa are the members of the executive committee.

The Western Ontario Academy of Medicine held its final session for 1921-22 in the Medical School Auditorium at 2 p. m. sharp, on Tuesday, May 23. The programme was furnished by Dr. W. C. Bowers, of Bellevue Hospital, New York, who spoke on the subject of Otitis Media, from the standpoint of the general practitioner. This was followed by an address with lantern demonstration of the commoner diseases of the skin, by Dr. G. C. Campbell, of McGill University and Montreal General Hospital. A skin clinic, of a considerable number of cases, was also presented, of features, diagnoses and treatment indicated. Dr. H. O. Foucar, of the Department of Paediatrics, of the Mayo Foundation, Rochester, Minn., gave an interesting paper on the subject of "Respiratory Manifestations in Encephalitis Lethargica in Children," illustrated by lantern pictures. A noon-day luncheon preceded the general meeting.

GEO. A. RAMSAY.

The last meeting of the Harvey Club was held at Westminster Hospital on Wednesday evening April 26th, Dr. McGhie and his staff gave a program of which the following is a short resume: 1—Dr. McLean read an excellent paper on general paresis and presented 9 cases illustrating the 3 stages of the disease—3 early, 3 intermediate and 3 late stages. 2—Dr. Campbell outlined the treatment of G. P. I. used at the Westminster Hospital. 3—Dr. Horne read a paper on epilepsy and presented a number of patients, among whom was a patient with traumatic epilepsy, due to a depressed fracture in the right parietal region, which was demonstrated by the X-ray plate as well as by palpation. The heartiest thanks of the Club were extended to Dr. McGhie and his associates.

TO THE PHYSICIANS PRACTISING IN ONTARIO

Spadina House,
TORONTO, MAY 1, 1922.

Dear Sir:—

For some time the Department has been endeavoring to improve registration of births in Ontario by making appeals to physicians to issue their "Notices" in all cases.

Notwithstanding these efforts, approximately ten to fifteen percent of births are unregistered, and the Department has come to the conclusion that the only plan where-

by these notices can be secured is to institute legal proceedings against physicians neglecting this duty.

You are, therefore, herewith instructed to forward to this office, along with your monthly returns, a list of physicians who fail to forward the "Physician's Notice" within 48 hours after the date of the birth, giving specific instances of such neglect with names, dates, etc.

It would be advisable that you notify all physicians—through the press or otherwise—practicing in your municipality that you are so instructed and that failure to furnish the aforementioned "Notice" will involve prosecution.

Yours truly,

JOHN W. McCULLOUGH,
Deputy Registrar-General.

TO THE PHYSICIANS OF TORONTO

MAY 22, 1922.

The Department of Public Health* has for some time been considering plans by which a still further reduction of diphtheria in the city might be brought about.

Since the introduction of the method of developing an immunity to diphtheria by the toxin-antitoxin method, the results have been closely followed, and the Department now feels that it is in a position to make recommendations in relation to this method of conferring immunity.

In spite of the exceptional facilities provided to aid in the diagnosis of diphtheria and the fact that in diphtheria antitoxin we have a specific cure, if administered early and in sufficient dosage, we still have each year a large number of cases and deaths. For the past few years the case mortality rate has remained approximately the same. In 1919 it was 7.8 per 100 cases, in 1920—9.9 and in 1921—5.4.

A most important fact is that of all the reported cases in 1921, an average year, 22 per cent occurred in children under 5 years of age. The case mortality for this group was 12.5 per 100 cases, as compared to 4.4 in children from five to fourteen years and 1.1 per cent in the group of fifteen years and over.

Considering the above figures, it is evident that while it is important in any home in which a case of diphtheria occurs that the contacts should be given an immunizing dose of diphtheria antitoxin, it is particularly important when those contacts are children under 5 years of age.

As to toxin-antitoxin immunization, we believe that our chief effort should be directed to the children of pre-school age. As nearly all of these children are susceptible to diphtheria, they can be immunized without previous Shick testing and the reactions in this group are practically always mild.

If children of school age are to be immunized they should be previously Shick tested as a fairly large percentage are by this time immune to diphtheria and therefore do not need further immunization.

Adults should only be immunized when their Shick test is positive and they themselves desire the immunization.

To facilitate this work the Provincial Board of Health through the Local Board of Health, is distributing the material prepared by the Connaught Laboratories for both the Shick test and the toxin-antitoxin immunization. These preparations may be obtained by any physician at the City Hall.

Further, to meet the needs of those unable to pay, or those patients whom physicians would prefer not to deal with themselves, clinics will be opened at the Isolation Hospital, the Hospital for Sick Children and the Women's College Hospital.

If this effort to secure the immunity of our population from diphtheria is to succeed, it must have the support of (and be carried out by) the medical profession. This letter is addressed to you, trusting that your support (and active co-operation) will be given to our efforts to further the control and prevention of diphtheria.

Sincerely yours,

CHAS. J. HASTINGS,
Medical Officer of Health.

OFFICERS OF THE ONTARIO MEDICAL ASSOCIATION. 1922-1923.

The Officers of the Ontario Medical Association for the ensuing year are as follows:—

President—E. R. Secord, Brantford.
1st Vice-President—J. F. Argue, Ottawa.
2nd Vice-President—Geo. S. Young, Toronto.
Treasurer—G. Stewart Cameron, Peterborough.
Secretary—T. C. Routley, 127 Oakwood Ave., Toronto.

COUNSELLORS

- District 1.—R. G. R. McDonald, Sarnia
" 2.—Weston Krupp, Woodstock
" 3.—T. H. Middlebro, Owen Sound
" 4.—F. W. E. Wilson, Niagara Falls
" 5.—Robert T. Noble, Toronto
" 6.—E. A. McQuade, Trenton.
" 7.—John Sparks, Kingston
" 8.—Hugh Laidlaw, Ottawa
" 9.—Edgar Brandon, North Bay
" 10.—John Pratt, Port Arthur

The next annual meeting of the Ontario Medical Association will be held in Windsor, under the auspices of the Essex County Medical Society.

The dates will probably be May 29th, 30th, 31st, and June 1st, 1923.

Plans are already being made to make the 43rd annual meeting a real success.

THE FORTY SECOND ANNUAL MEETING OF THE ONTARIO MEDICAL ASSOCIATION.

THE 42nd annual meeting of the O. M. A. which was held in Toronto during the week of May 29th was in every particular most successful.

From point of view of weather, attendance, programme and social activities the week left nothing to be desired.

It is quite possible that the record attendance of members (640) was in no small manner influenced by the delightful summer sunshine which was unbroken until Friday afternoon, the last session of the convention.

The opening address in Convocation Hall on Monday evening was well attended, between four and five hundred people being present to hear Dr. Macfie Campbell of Boston on the subject of "The Modern Conception of Mental Disease." The large lay audience evinced quite as much interest in the subject as did their medical friends.

Tuesday was given over entirely to business. The directors met at 10'clock, adjourning at 11, at which hour the Committee on General Purposes convened. Most of the affiliated societies were represented and the record attendance of seventy five members of the committee was reached.

The business programme containing 22 reports had previously been mailed out to the members, a point worthy of note, as the work of the committee was thus greatly facilitated and the various items of business dealt with thoroughly and intelligently.

At 6-30 p. m. upwards of 100 sat down to the "Round Table Dinner" which was followed by a "Round Table" discussion presided over by Dr. J. W. Crane of London. Upwards of 40 participated in discussing the report of the Inter-relations Committee and the short paper presented by Dr. V. E. Henderson on the relation of the physician and druggist to each other, and to the public. The "Round Table" evening again proved itself worthy of a permanent place on the programme.

After the association had dealt with the general business on Wednesday morning, two excellent papers were presented by Dr. Allen Krause of Johns Hopkins, Baltimore, on "The Changing Face of Tuberculosis" and by Dr. Reuben Peterson, University of Michigan, on "The Advantages of Gas Inflation in Obstetric and Gy-

naecologic Diagnosis with Especial Reference to its Importance in the Study of the Causes of Sterility."

The afternoon was given over to the six sectional meetings and clinics, some twenty seven men being listed to participate.

The association dinner held at the King Edward Hotel on Wednesday evening, and to which the ladies were invited, was a great success. The attendance was close upon 375, the cuisine excellent, the music bright and cheery, the presidential address by Dr. F. J. Farley, an interesting oration sense, while the final part of the programme, a radio-telephone concert, was both unique and entertaining.

On Thursday at mid-day in Convocation Hall close upon 500 gathered to listen to the address in medicine by Dr. Thos. McCrae of Philadelphia.

At the sectional meetings during the day 40 speakers were listed to take part in ten sessions.

From four to six o'clock Dr. and Mrs. Herbert Bruce entertained the members and their wives at a most delightful garden party at their home.

Thursday evening was an open night for class reunions and according to reports was taken advantage of by many.

The address in surgery was given at 11:30 a. m. on Friday by Dr. Neil John McLean, Winnipeg. The rest of the day was in turn given over to sectional Meetings, at which 27 were listed to participate.

Particularly worthy of mention was the unique session held at the Pathological Building of the University of Toronto where 12 demonstrations in pathology and clinical laboratory methods were held. The attendance was large and judged by the interest manifested, the entire programme was highly appreciated.

The Convention came to a close on Friday afternoon, the last session being a conjoined meeting of the sections of medicine and surgery on the subject of Empyema and abscess of the lung.

Before the meeting closed votes of thanks were fittingly tendered the university authorities for the use of the buildings, the Academy of Medicine, Toronto, (hosts of the meeting), Dr. and Mrs. Bruce for their kindly hospitality, Drs. Noble and Jordan, the indefatigable Committee on Arrangements, and all the officers and contributors who made the programme one of outstanding merit and interest.

CANADIAN SOCIETY FOR THE STUDY OF DISEASES OF CHILDREN

THE first week in June saw the birth of another medical society which is to be Dominion-wide in its scope. On the 2nd of the month a number of physicians from the provinces of Quebec and Ontario met at the Hospital for Sick Children, Toronto, and laid the foundation of what will be known as "The Canadian Society for the Study of Diseases of Children." It had long been felt that the formation of such a society was necessary in view of the rapidly increasing interest shown by the physicians of the Dominion in this particular field of medical science.

Those present at the meeting were: Drs. A. D. Blackader, L. M. Lindsay, A. Goldbloom, H. B. Cushing, H. P. Wright, Montreal; Dr. Geo. Campbell, Ottawa; Dr. Crossan Clark, Hamilton; Drs. Alan Brown, A. Caulfield, Geo. Smith, Geo. Pirie, Geo. Boyer, Bev. Hannah, A. P. Hart, E. H. Morgan, Toronto.

Dr. Blackader, as Chairman, opened the meeting with a short address in which he outlined the aims and activities of the proposed society. The actual drafting of by-laws and Constitution was left to the officers and council, but many suggestions were made and recorded regarding the details of the constitution and by-laws, and will be forwarded to the council for consideration at its first meeting.

The society will, if these suggestions are carried out, be independent of any other medical association: it will consist at first of not more than fifty members of whom the majority will be paediatrists. Physicians in other branch-

es of medicine, whose work has a close relation to the field of paediatrics and child welfare generally will also be eligible.

The officers elected were: President: Dr. A. D. Blackader, Montreal. Vice-President: Dr. Alan Brown, Toronto. Sec.-Treas.: Dr. E. A. Morgan, Toronto.

Councillors: Dr. H. P. Wright, Montreal; Dr. Geo. Campbell, Ottawa; Dr. Alan Caulfeild, Toronto.

The officers and members of the newly formed society were entertained at a dinner given by the vice-president, Dr. Alan Brown, after which there was a general discussion relating to the new organization.

BRITISH COLUMBIA

Dr. T. J. McPhee has recently been appointed Medical Officer of Health for Nanaimo, V. I.

To those few members of the profession who have not yet joined the British Columbia Medical Association we would ask them through the medium of this Journal, which enjoys a large circulation in this province, to send in their application for membership at the earliest possible moment. The annual meeting of the Provincial Association will be held during the week ending August 26, 1922.

The annual meeting of the Vancouver Medical Association was held on April 24, 1922, when the following officers were elected for the ensuing year. Dr. J. J. Mason, president; Dr. F. J. Buller, vice-president; Dr. H. H. Milburn, secretary and Dr. Stanley Paulin, treasurer.

A special meeting of the same association was held on May 18, when the letter of the British Columbia Medical Association to the Workmen's Compensation Board was endorsed.

From enquiries made in regard to the success of the "Health Campaign," which was recently carried on throughout the Province, there is a consensus of public opinion from various organizations including the Boards of Trade, Service Clubs, newspapers, parent-teachers associations, etc., that the medical men did much to popularise the profession in this province by their action in taking the public into their confidence and teaching them more about the prevention of disease.

The profession was rather startled by a letter of a circular character dated May 9, 1922, which was sent out

by the Workmen's Compensation Board. It solicited a definite signed statement to the effect that the medical men would render gratuitous service to recipients of mothers' pensions, should they apply for it. The reply was left to the Council of the Association to answer and after consideration a letter was sent to the members of the above Board drawing their attention to the fact that it had been the habit of medical men for unknown generations to assist the sick without hope of reward when they were in indigent circumstances, but stating that members of the profession could not put themselves on record as being willing to supplement the inadequate measure of relief afforded by this Department of the Government by proffering gratuitously the services of the profession. It was also recommended that this letter should be the sole reply from the profession.

MEMBERSHIP in the British Columbia Medical Association is steadily growing and it is felt by the executive that in the near future the profession in this province will be completely unified. Highly satisfactory results have been obtained by the executive secretary in his membership campaign. With the exception of a few outlying points every medical man has been personally visited; and an evident desire on the part of the profession to co-operate in the various proposed reforms was noted. The executive and the several committees have held many meetings during the past few months, and the following matters of importance are at present under consideration:—Government Venereal Clinics; Well Babies Clinics; Matters affecting the relationship of the medical profession and the Workmen's Compensation Board; Medical Contracts; Lodge and Fraternal Societies practice; Chiropractics and other illegal cults; also other questions of minor importance.

Several individual complaints or grievances have been ventilated and taken up by the Executive to the satisfaction of the parties concerned.

GENERAL

EVIDENCE BY DECLARATION

A FEW weeks ago, by reason of a misunderstanding between the Crown officers of Toronto and the authorities of the Toronto General Hospital, I was requested by the Attorney General to preside over an informal but representative Committee to consider the proper practice in cases of apparent crime.

Inter alia it was agreed that it would be of advantage that a simple and practical statement as to "Dying Declarations," "Ante Mortem Statements" or "Evidentiary Declarations" should be prepared for the guidance of medical men generally and those in hospitals particularly.

I have prepared the following after conference with experienced Crown officers and medical men: I am, however, wholly responsible for the document.

WILLIAM RENWICK RIDDELL.

OSGOODE HALL, TORONTO, APRIL 21, 1922.

Declarations as Evidence

THE general rule of our law is that only what is said under the sanction of an oath (or of its legal equivalent) can be received as evidence. But for about two hundred years, the English law, which our law follows, has made an exception in what have been called "Dying Declarations," or "Ante Mortem Statements"—sometimes "Evidentiary Declarations."

General Remarks

When a judicial investigation is being made into the death of any person by homicide, statements made by that person respecting the circumstances resulting in his death, are admitted in evidence, if such statements are made by him when under the influence of a conviction that his death is impending.

Sometimes such evidence is of the very greatest import-

ance, since frequently no third person was present. It is, of course, the duty of every good citizen to disclose crime and to preserve evidence of it. A medical man, therefore, attending a patient likely to die under circumstances indicating a crime by act of omission or commission which directly or indirectly caused his death, should endeavour to obtain such evidence from him as is available; and this sometimes is as useful to protect the innocent accused of crime as it (more frequently) is to convict the guilty.

This is not (as it is sometimes offensively put) to act the part of a detective, but to act the part of a good citizen and it is called for only in cases of apparent homicide where there is reason to suspect that the condition of the patient is due directly or indirectly to crime, foul play or criminal negligence.

Speaking generally, it is always wise for the doctor as soon as he thinks that a case is hopeless, to inform the patient of the fact—he may have affairs to settle, a will to make, directions to give, etc.

Difficulties may sometimes arise as to which it is impossible to lay down any fixed rule—for example the patient may be of such a temperament that a statement of this kind would probably cause death sooner than it otherwise would occur, etc. Medical men are always conscious that (speaking generally) their first duty is to the patient, and that consequently nothing which can be reasonably and properly avoided should be done which is likely to harm the patient; and yet, exceptional cases may occur in which the private must give way to the public good. The medical man must face the situation if and when it arises and determine as his conscience and sense of public duty dictates. Cases of this kind are exceptional; and in no case should fanciful or captious objections be raised; in all cases of real difficulty, the Crown Attorney should be at once consulted.

Rules of Law

To make a Declaration evidence, there must be in the mind of the patient an impression of impending death; if he believe that his case is hopeless, but that there will be a prolonged continuance of life, a Declaration is not admissible. There must be expectation, a hopeless expectation, of death near approaching. It is of no importance that the physician or any other than the patient, thinks he may or will recover; the important thing is the expectation of the patient. Nor is it of any importance how this expectation is induced, whether from the patient's own observation, statements of medical men or otherwise; the essential matter is its existence, however induced.

This expectation, impression and conviction that death is impending, may be manifested by the patient in any of several ways; he may say so in so many words or he may indicate his conviction of impending death by changing countenance and appearing distressed or terrified when he is informed of it, etc. He may do this without any words of apprehension; and still make his conviction clear.

It is of great importance for the ends of justice that the attending physician should not only make the state of the patient unmistakably clear to him, but also that he should, if possible, obtain unmistakable evidence that the patient was convinced and without hope.

DIRECTIONS FOR TAKING DECLARATIONS

Where there is ample time, the Police and Crown authorities may be communicated with to take the Declaration; but no chances should be taken whereby the evidence may be lost.

The doctor should satisfy himself that the patient understand what is said to and by him.

The Declaration may be elicited by questions put to the patient.

Everything said by him in respect to the circumstances causing death should be noted, even if it may seem to be immaterial.

It is very desirable that the Declaration be reduced to writing; where circumstances permit, it should be read

over to the patient; and if he is able, he should be got to sign it; witnesses present should also sign as witnesses. Magistrates sometimes examine a patient on oath and the examination is signed by both—this is permissible.

It is, however, not absolutely necessary that the Declaration be reduced to writing at all. If circumstances do not permit of a written Declaration, an oral Declaration should be obtained. In that case, all present should take full notes of what is said, so that the memory may be refreshed (if necessary) when evidence is to be given of the Declaration. (Such notes are, however, not evidence in themselves.)

If the Declaration be reduced to writing and circumstances prevent its being signed by the patient, the witnesses should sign it after making certain that it is accurate: the absence of the signature of witnesses is not fatal to the Declaration but such signature is always advisable.

Practical Rules

1.—A Declaration is admissible in evidence only concerning the circumstances resulting directly or indirectly in the death of the patient himself.

2.—It must be made under the influence of a conviction in the mind of the patient that his death is impending.

3.—It may be made to anyone.

4.—The doctor should not imperil the obtaining of such Declarations by waiting for the Police or Crown authorities.

5.—Where there is ample time it is well to communicate with Police and Crown authorities.

6.—A Declaration may be obtained by questions; and when the statements of the patient are not full, it is often well to supplement them by information obtained in answer to questions.

7.—Where possible the Declaration should be reduced to writing, read over to and signed by the patient—if it is also signed by witnesses, this is the ideal Declaration.

8.—But a written Declaration without signature is admissible.

9.—And so is an oral Declaration.

10.—In case of any difficulty at any stage, the Crown officers should be at once consulted.

11.—In all cases of doubt, the Declaration should be taken, leaving it to the Court to determine its admissibility and value.

12.—Crown and Police authorities generally prefer to take the Declaration by stenographers—these rules are, however, not intended for the guidance of such authorities—but for medical men or laymen who can seldom obtain stenographic assistance.

WILLIAM RENWICK RIDDELL.

OSGOODE HALL, TORONTO, APRIL 20, 1922.

THE Canadian Radiological Society has applied at the recent meeting of the Canadian Medical Association in Winnipeg to be recognized as a separate department of medicine in affiliation with the Dominion organization. Its active membership consists exclusively of reputable medical men, members of the Dominion Association who are actively engaged in this specialty, and derive the major portion of their income from it. They have recently established a Bureau of Consultation and are prepared to give advice to members of the profession on all matters pertaining to the use of x-ray and radium, and also to assist and advise institutions and physicians who desire to purchase apparatus in the selection of their equipment. The value of efficient roentgen ray examinations in diagnostic work is being increasingly recognized by all, and therapeutic action of both x-ray and radium is at present being carefully studied in every important medical centre.

At the annual session of the Medical Council of Canada held in Ottawa on May 30th and 31st it was decided to order an examination in English and French to be held at Montreal and Halifax on October 10, 1922.

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MONTREAL

Obituary

DR. RUSSELL WITHERS

ONE of the oldest physicians in Nova Scotia died recently at Annapolis in the person of Dr. Russell Withers. He was born in St. John, N. B., Feb. 22nd, 1836, and was thus over 86 years of age. He graduated from Columbia

University in 1865 and practised in Annapolis for 45 years.

During the recent war he, and Dr. A. Robinson of the same town, who graduated in 1857, worked as in the days of their youth to attend the sick in the absence of younger men who went overseas.

Book Reviews

Papers from the Mayo Foundation and the Medical School of the University of Minnesota. 1915-1920. W. B.

Saunders and Co., Philadelphia and London, 1921.

For the occupied man who rarely can find time to explore the labyrinth of experimental medicine this volume will fill a long felt want. Paper after paper of the best type of investigation is here found well abstracted and in a form acceptable to all; the great mass of experimental protocol is omitted and in its place a well written summary of the results obtained, at times a brevity so marked is exhibited that one wonders at the perfection of expression that allows so much to be put before one in such tabloid form. As in the volume of the Mayo clinic practically all the systems are touched upon and many excellent resumes are to be found. Coming from a university medical school there are various research problems not strictly medical or surgical, but of them the same high praise can be given. If this is a sample of a particular publication we are compelled to admire and to hope that readers will be able to remember the striking feature of the brevity when they in turn take pen in hand.

N.B.G.

Abdominal Pain by PROFESSOR H. NORBERT ORTNER, 2nd Medical Clinic, University of Vienna, authorized translation by WILLIAM A. BRAMS, M.D., late Lieutenant Commander, Medical Corps, U.S.N., and DR. ALFRED P. LUGER, first assistant, second medical clinic University of Vienna.

This work represents an attempt to touch upon every known form of abdominal pain. Well classified according to particular regions, the detailing of an enormous number of painful conditions is gone over in a comprehensive ramble. It is not a book for a student but rather something that any practitioner who knows the ground might well enjoy and read with profit. A few curious errors are in evidence "Nische" is the x-ray worker's nitch or notch in a picture, malena, our well known melaena. There are many sensible and practical clinical observations, many on the other hand do not appeal, such as considering tenderness of both vagi in the neck a sign of toxic neuritis in tuberculosis, and again importance being attached to such things as the presence of spirochaetes and spirilla in the faeces.

Published by Rebman and Co., New York. The book may also be obtained from the MacMillan Co., St. Martin's House, Toronto.

N. B. G.

Tuberculosis in Infancy and Childhood. Lectures delivered at the Children's Hospital, Philadelphia, by J. CLAXTON GITTINGS, M.D., and FRANK CROZER KNOWLES, M.D., and ASTLEY P. C. ASHHURST, M.D. Pages VI, 273, Philadelphia, J. B. Lippincott Co. 1922. Price \$5.08.

In their introduction the authors direct attention to the need for a comprehensive book dealing with diagnosis and treatment of tuberculosis in early life, presented from the standpoint of the pediatrician. Their work covers the ground fairly well and may be recommended. It shows, however, either haste or carelessness in its make up, misspelled words abounding throughout, while tuberculosis of the eye, trachea and bronchi appear with caseous pneumonia under tuberculosis of the upper respiratory tract. Open air schools receive scant mention, while the preventorium is not noticed.

J. H. E.

Pulmonary Tuberculosis, Its Etiology and Treatment by DAVID C. MUTHU, M.D., Medical Superintendent Mendip Hills Sanatorium, Somerset, England, Demy 8vo, pages VIII. 381, 28 plates. London Bailliere Tredall and Cox, 1922, Price 12s 6d.

Muthu's work deals with diagnosis and treatment along generally accepted lines and his results in his Sanatorium may be accepted as practical proof of the soundness of his methods. Much of his book deals with the question of etiology and in his discussion he brings forward many hypotheses which are generally recognized as untenable and disproven. This portion of his work cannot at the present time be recommended to the general practitioner as safe and sane, he deals too much with theory.

J. H. E.

Tuberculosis. The relation of Tuberculosis to general bodily conditions and to their diseases by T. PARKES WEBER, M.A., M.D., F.R.C.P. London H. K. Lewis & Co., 1921, price 2b. 6s. 27 pages. Demy 8vo paper covers.

This pamphlet is the First Mitchell Lecture on Tuberculosis, delivered before the Royal College of Physicians, London, November 1, 1921. He reviews the present position of the tuberculosis problem, discusses immunity and reinfection, the influence of diabetes, syphilis, cirrhosis, Hodgkin's disease, gout and other diseases, and makes reference to tuberculides and spontaneous pneumothorax, with a splendid bibliography of the latter subject.

J. H. E.

Lessons on Tuberculosis and Consumption by CHARLES E. ATKINSON, M.D. of California. 12mo cloth, 470 pages. New York and London, Funk and Wagnalls, 1922. Price \$2.50.

This is another of the many books which have been appearing of late years which may be placed in the hands of a patient to assist in securing his cooperation in treatment. It contains much that will be useful to the patient in spite of this paragraph which appears in his foreword

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and would appear to damn the whole work in the opinion of most right thinking physicians. "Only when it is altogether impossible to secure the advice of a physician skilled in dealing with tuberculosis and in whom you place trust and confidence and with whom you will cooperate, should you attempt to manage your own case. However, if this course is forced upon you, a careful reading of the appropriate lesson, followed by a little thoughtful reflection, will very likely enable you to accept or reject the diagnosis of tuberculosis with sufficient accuracy to form a basis for future action. Should you conclude that you have tuberculosis, then by carefully and conscientiously fitting the rules for recovery to your own needs you may look forward with much confidence toward ultimately winning the coveted prize. It is my earnest desire to make this book as helpful as possible, and criticism will be appreciated. I would like for the reader to feel perfectly free to express his opinion without restraint, and all suggestions for improving the lessons will be received with thanks."

J. H. E.

Twenty-First Annual Report of the Canadian Tuberculosis Association Published at the office of the Association, Bank Street, Ottawa, 1921.

This volume, which is for general distribution, contains the transactions of the 21st annual meeting held at Toronto, May 21, 1921. To this is added a concise summary of the reports of the Board of Consultants who visited the Sanatoriums of the Department of Soldiers' Civil Re-Establishment, and summary reports of all the Canadian sanatoriums and special hospitals, including preventorium. It gives a comprehensive view of the forces lined up in Canada against tuberculosis and as issued from year to year, is a valuable volume for reference, which is a credit to the Association. It forms the last report of the able and energetic Secretary, Dr. G. D. Porter, who has for so many years been identified with this work. The new President is Mr. A. B. Cook of Regina and Dr. R. E. Wodehouse, O.B.E., succeeds Dr. Porter.

J. H. E.

International Clinics. Thirty-second series, volume I, 1922. Edited by H. R. M. LANDIS, M.D., Philadelphia, U. S. A., with Medical and Surgical Collaborators in United States, England and Canada. J. B. Lippincott Company, Montreal, Que. Price, \$2.50 per volume or \$10.00 for the series of four.

Following six excellent clinics on medical subjects, rheumatism, heart disease, anaemia, foreign proteins in the causation of disease, there are the usual departments of medicine, pediatrics and surgery. The last one hundred pages is devoted to a critical review of the more important contributions in medicine and surgery which appeared in the leading journals during 1921. These articles give the physician a bird's-eye view of the progress of the year.

J. H. E.

Basal Metabolism. Its Determination and Application. Frank B. Sanborn, M.S., Editor. 6x9 inches, 282 pages with 10 plates, 60 illustrations and 25 tables. Boston, Sanborn Company, 1922. Price \$6.00.

This work is the product of 22 contributors. Nine forms of metabolism apparatus are described with methods of use. The clinical applications of studies in basal metabolism are discussed by various writers who have had special experience in the diseases assigned to them. All necessary tables are included, making the book a practical

and invaluable guide to the laboratory worker as well as to the physician wishing to interpret the results obtained. There is a bibliography of selected references which summarize the development of basal metabolism. Through its various stages references are found as late as December, 1921.

J. H. E.

Internal Secretion and the Ductless Glands by SWALE VINCENT, D.Sc., M.D., Professor of Physiology in the University of London. Second Edition, pages 422, 105 illustrations. London, Edward Arnold & Co., 1922. Price 25s. net.

We welcome this second edition of Prof. Vincent's work which received such a hearty welcome in 1912 and has been out of print since 1914. It is a most excellent summary of our knowledge up to the end of 1921, of the structure and function, both normal and pathologic of the glands of internal secretion. The clinical aspect of the subject received much more attention than in the former edition. The growth of our knowledge of internal secretions is traced in an able and interesting way, following pathological, clinical and experimental methods. He believes that the most valuable contributions in the near future will be derived from a careful study of clinical conditions and a patient investigation of pathological anatomical findings.

J. H. E.

Mentally Deficient Children. Their treatment and Training. 5th edition, G. E. SHUTTLEWORTH, M.D., B.A., etc., and W. A. POTTS, M.A., M.D. Pages XVIII and 320, illustrations 29 including 21 plates. Size 8vo, price 10s 6d net.

This is an excellent manual regarding the care of the defective child. It is profusely illustrated and may be recommended as a good handbook.

There is a useful account of the development of the interest in these weak minded children, throughout the various countries of the world, showing that England is not backward in this present day uplift.

The appendices are more valuable to the English reader than the American, but the whole volume is one of the best published on this interesting subject.

G. W. H.

Mind and Its Disorders. 4th edition. W. H. B. STODDART, M.D., F.R.C.P., pages XVI and 524. Illustrations 84 including 10 plates. Size Demy 8vo. Price 22s 6d net.

This work on mental disorders is written in Stoddart's usual concise, and easily read manner and it is an excellent text book from the student's standpoint.

The influence of the Freud school is very clearly seen through the volume, and it does not improve the book as the general tendency today is towards the decadence of the Freudian views, while retaining the value of the Psycho-analytic methods. For this reason, while the book may be recommended to the practitioner as worthy of his library, yet it is a little too decided along this line to be a general text book.

One may hope to see still further revision of the work follow with a gradual lessening of the Freudian influences. The general plan of the volume is however excellent, and there is no excessive amplification in any subject so that there is no unnecessary reading to be done. The description of the varied parietic and sensory manifestations of the depressed and maniacal cases alone makes the book well worth reading.

G. W. H

